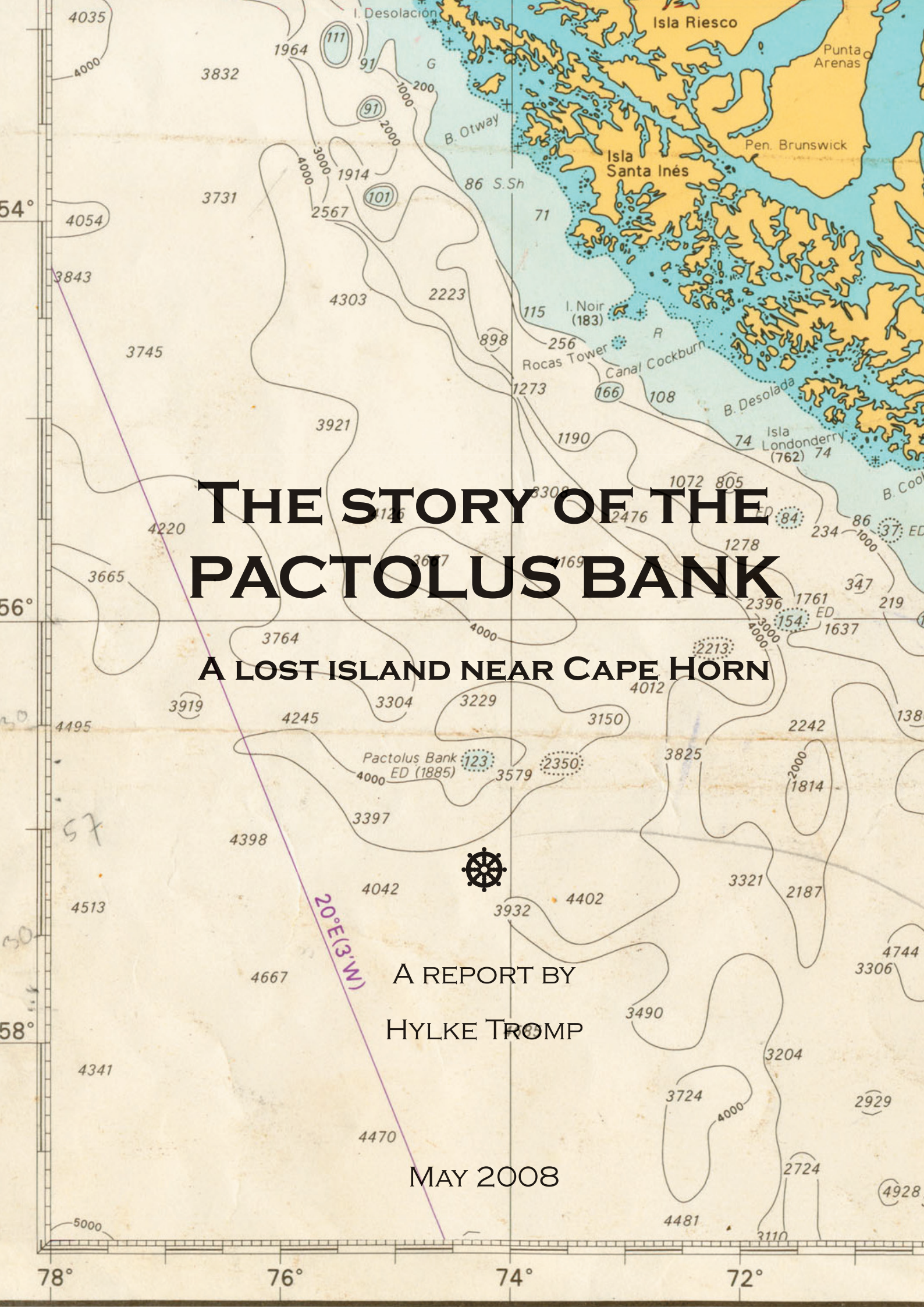

The story of the Pactolus Bank

A lost island near Cape Horn

A report by

Hylke Tromp

May 2008

Preface

This is a report on the Banco Pactolus also known as the Pactolus Bank and the Burnham Bank, reportedly positioned some 250 miles WSW of Cape Horn (Cabo de Hornos), at 56º36'S 74º20'W.

The Bank was initially reported in 1885 by Captain Burnham of the US vessel PACTOLUS and has not been traced since.
The report covers the importance of the Bank, the attempts to find it, and stories that are related to the Bank.

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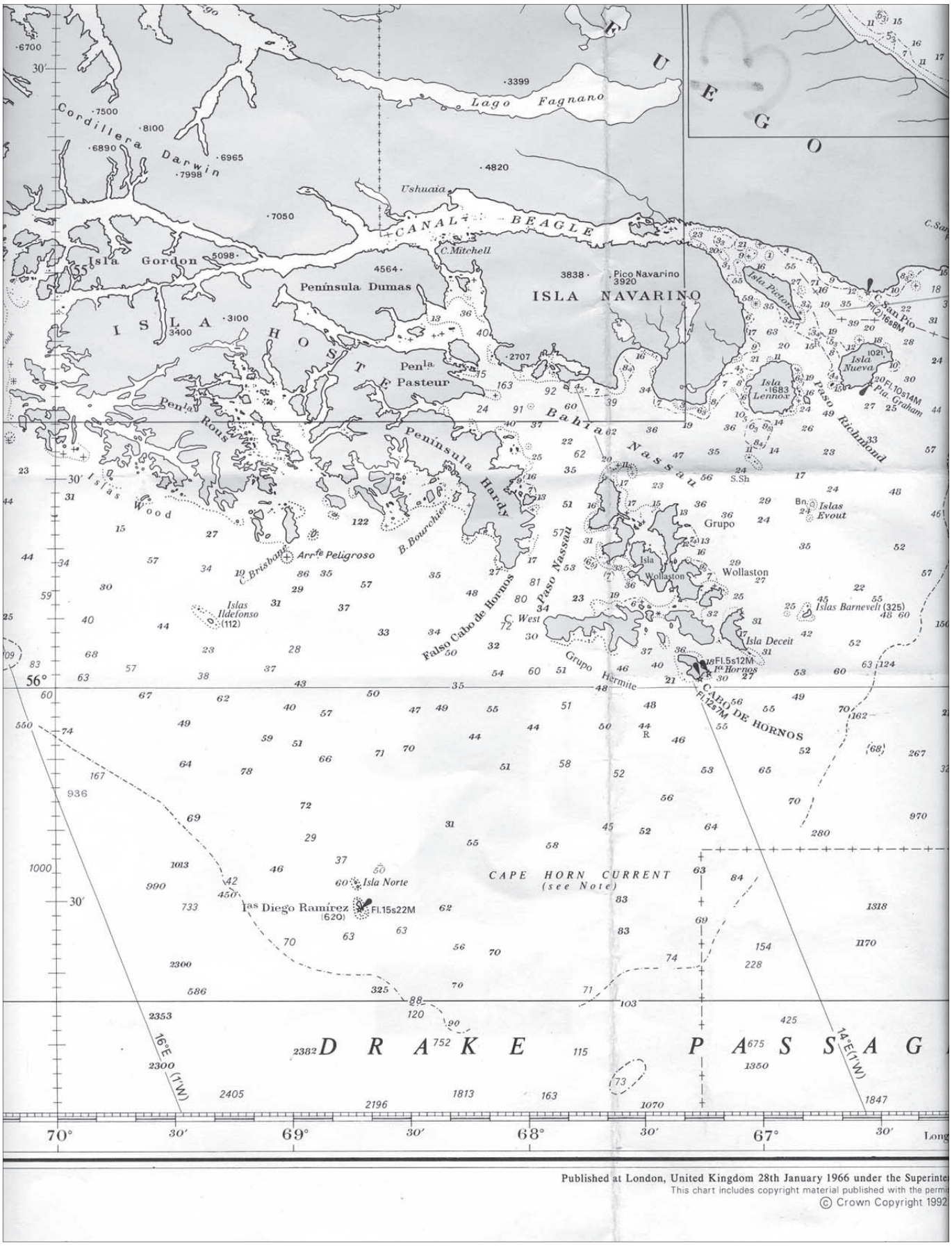
Cabo de Hornos, February 16th 2000. Photo by author



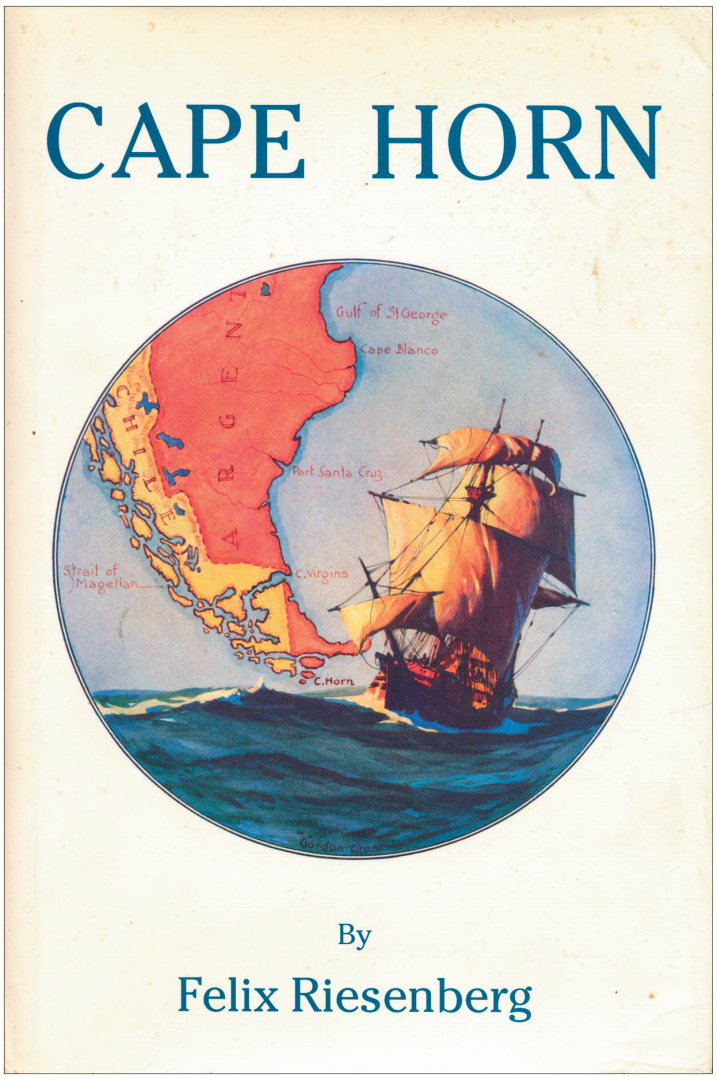
The general area at Cape Horn, in the northern part of the Drake Passage. Fragment of BA Chart 539 (sounding in fathoms)

Chapter 1
Introduction

I sailed the area of Cape Horn a few times, going to or coming from the Antarctic Peninsula. Once I stood on the cape and visited the monuments and the light. Indeed a powerful spot.

On March 9th, 2002 our ship passed Cape Horn, returning from the peninsula. It was a grey day and there was a westerly storm. The next day we arrived at the 19th century Estancia Harberton in the Beagle Channel. In their little shop they were selling Felix Riesenberg's *Cape Horn*. I decided to buy it.
In the summer of 2004 the book finally reached the top of my heap of books-to-read.

Felix Riesenberg (1879-1939) was an American merchant captain. At the end of his life he wrote this book on the history of Cape Horn. It was published in 1937. In 1995 Ox Bow Press published a reprint, which is the one I bought.
Riesenberg's book includes the discovery of the Magellan Straits and Francis Drake's circumnavigation as far as this is related to Cape Horn.



Front of Riesenberg's book

There is an ongoing debate about who discovered Cape Horn. Some say it was Francis Drake on October 24th, 1578, others say it was Willem Schouten, on January 16th, 1616.
Drake went on an expedition with the blessing of HRH Queen Elisabeth I; his destination included the newly discovered South Ocean. At Cabo Verde he took a prisoner; this Nuño da Silva was a pilot and an experienced and precise navigator.
After Drake's passage through the Magellan Straits and subsequent

arrival at the Pacific Ocean, his ship was driven to the south by a series of storms.
Da Silva's log states that they finally found shelter on an island on October 24th, 1578. His log was discovered in the royal archives at Sevilla by Zelia Nuttal in 1911. Before 1911 several books had been written on Drake's circumnavigation and many of the more recent dealt with the issue whether Cape Horn was the island they found shelter on. The credits for the discovery of Cape Horn, that is what is debated here.

This debate centers on the question at which island Francis Drake found shelter on October 24th, 1578. There are several clues in Da Silva's log, on several old maps and in some books that were written afterwards, but none of them is decisive as to the location.
Some say it was Cape Horn, thus stating that Drake was the discoverer of this famous cape. Some say it was an island west of Cape Horn called Henderson Island. Some say it was the Diego Ramirez group. Some say Isla Ildefonso.

Riesenberg concludes it was an island on the location of a bank that was discovered by a Captain Burnham in 1885, and that the island since 1578 must have sunk below the surface. Burnham positioned this bank some 250 miles WSW of Cape Horn.
Riesenberg's viewpoint, which centers around this Banco Pactolus, has not found much support. The most probable of all versions is that it was the

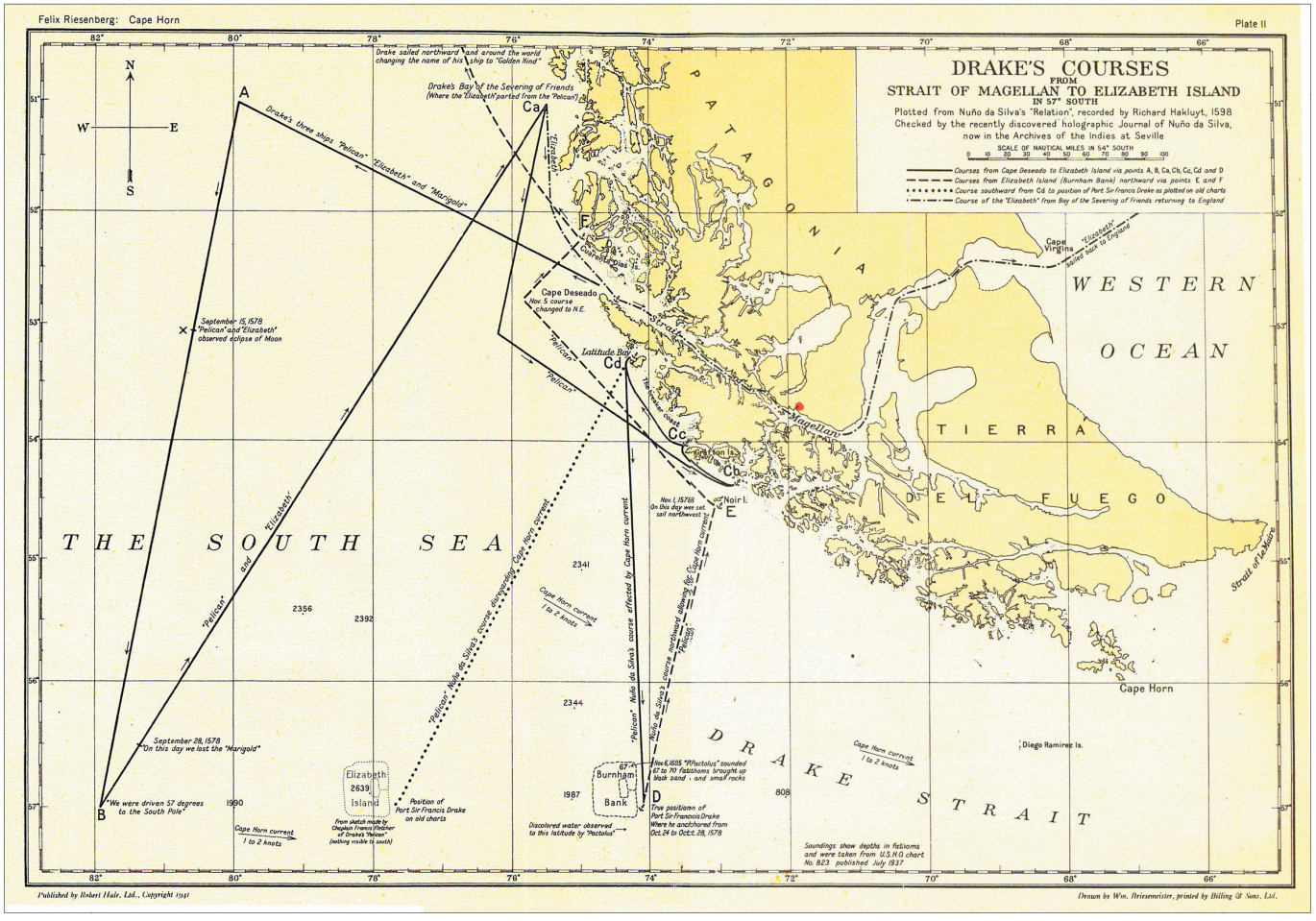
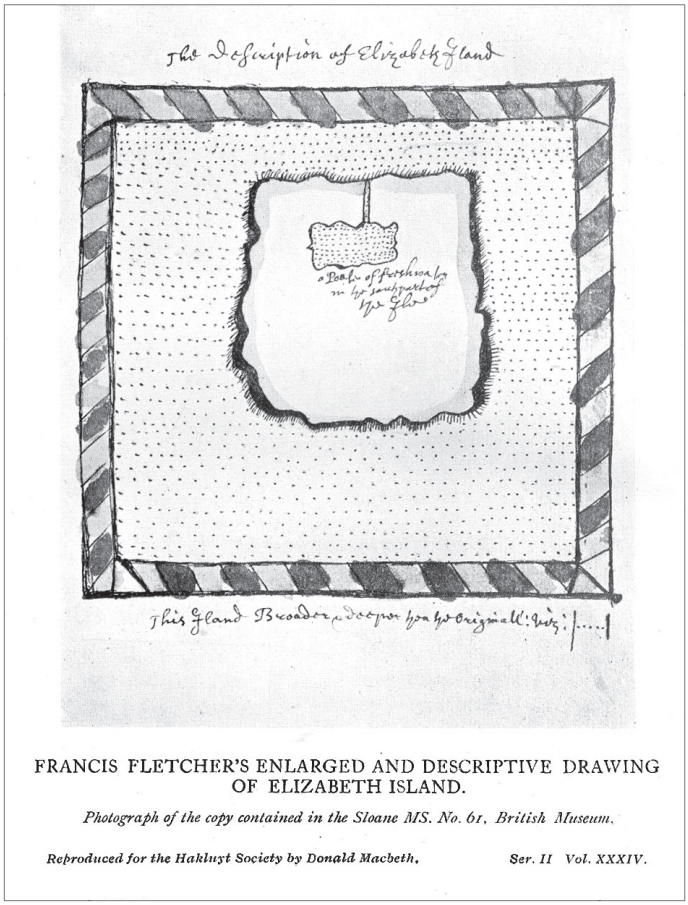

Felix Riesenberg: Cape Horn
Plate II
DRAKE'S COURSES
FROM
STRAIT OF MAGELLAN TO ELIZABETH ISLAND
IN 57° SOUTH
Plotted from Nuño da Silva's "Relation", recorded by Richard Hakluyt, 1598
Checked by the recently discovered holographic Journal of Nuño da Silva, now in the Archives of the Indies at Seville
SCALE OF NAUTICAL MILES IN 54° SOUTH
Courses from Cape Deseado to Elizabeth Island via points A, B, Ca, Cb, Cc, Cd and D
Courses from Elizabeth Island (Burnham Bank) northward via points E and F
Course southward from Cd to position of Port Sir Francis Drake as plotted on old charts
Course of the "Elizabeth" from Bay of the Severing of Friends returning to England
PATAGONIA
WESTERN OCEAN
TIERRA DEL FUEGO
THE SOUTH SEA
DRAKE STRAIT
Drake sailed northward and around the world changing the name of his ship to "Golden Hind"
Drake's Bay of the Severing of Friends (Where the "Elizabeth" parted from the "Pelican")
Drake's three ships "Pelican" "Elizabeth" and "Marigold"
Cape Deseado
Nov. 5 course changed to N.E.
Latitude Bay
Cape Virgins
"Elizabeth" sailed from Cape Virgins to England
Magellan
Noir I.
Nov. 1, 1578 On this day we set sail northward
Cape Horn
Diego Ramirez Is.
Straits of Le Maire
September 15, 1578 "Pelican" and "Elizabeth" observed eclipse of Moon
September 28, 1578 "On this day we lost the "Marigold"
"We were driven 37 degrees to the South Pole"
Elizabeth 2639 Island
Position of Port Sir Francis Drake on old charts
Burnham Bank
Discolored water observed to this latitude by "Pactolus"
Nov. 6, 1835 "Pactolus" sounded 67 to 70 fathoms brought up black sand + and small rocks
True positions of Port Sir Francis Drake Where he anchored from Oct. 24 to Oct. 28, 1578
Soundings show depths in fathoms and were taken from U.S.H.O. chart No. 823 published July 1937
Cape Horn current 1 to 2 knots
Published by Robert Hale, Ltd., Copyright 1941
Drawn by Wm. Riesenmeister, printed by Billing & Sons, Ltd.

Diagram from Riesenberg's book (inside frontcover). Here he constructs the proof of his theory.

present Isla Hornos where Drake had landed, with Cabo de Hornos on it, Cape Horn.

There is some inconsistency in the stories of the name Drake gave to this island.
According to Riesenberg, Drake named the island Elisabeth Island. In his book Riesenberg presents a drawing of the island made by chaplain Francis Fletcher, who was a member of Drake's party.
According to Fletcher's story (Nuttall, page 283), to Corbett (page 252), to Burney (page 323), to Morrison (page 646) and to Wagner (page 74), Drake's ships passed three islands in the eastern part of the Magellan Straits on August 24th, 1578, the largest of which they named Elizabeth Island. This is also stated in the declaration of nephew John Drake who had joined his uncle on the voyage (Nuttall, page 40). The drawing apparently shows the island in the Straits. This is confirmed by Raymond Aker, an American retired captain who has researched the Drake-Cape Horn connection. His confirmation is contained in a letter to Humphrey Hazelhoff Roelfzema of the Dutch Foundation of Netherlands' Cape Horners; the letter is dated February 1st, 1995. The island is now called Isla Isobel.
So Riesenberg was wrong there about Fletcher's drawing, and he was joined amongst others by Spate (page 248). Riesenberg probably was mistaken by the fact that Drake named a group of islands at the south of Tierra del Fuego the 'Elizabethides'. Wagner (page 97) though also mentions an Elizabeth Island in the general area of Cape Horn, thus possibly contributing to Riesenberg's confusion.



FRANCIS FLETCHER'S ENLARGED AND DESCRIPTIVE DRAWING OF ELIZABETH ISLAND.

Photograph of the copy contained in the Sloane MS. No. 61, British Museum.

Reproduced for the Hakluyt Society by Donald Macbeth. *Ser. II Vol. XXXIV.*

According to Spate, several charts (page 248: "French, Spanish and German as well as English, and as late as 1775") show these Elizabethides in the general area of our Bank. There is also another drawing by Fletcher, of a group of islands, the southern-most of which was called Elizabeth Island; this drawing can be found in Nuttall's *New light on Drake*, adjacent to page 42.
According to Nuttall (note at page 283), in Vaux's book this event is dated August 24th, 1578; they were at the eastern entrance of the Magellan Straits on that day.
Elsewhere Fletcher says that "to all these islands our general give one name, to wit, Elizabethides". It is not clear which ones he meant there.

Elisabeth Island. Drawing by chaplain Francis Fletcher, published in Zelia Nuttall's book, opposite page 285

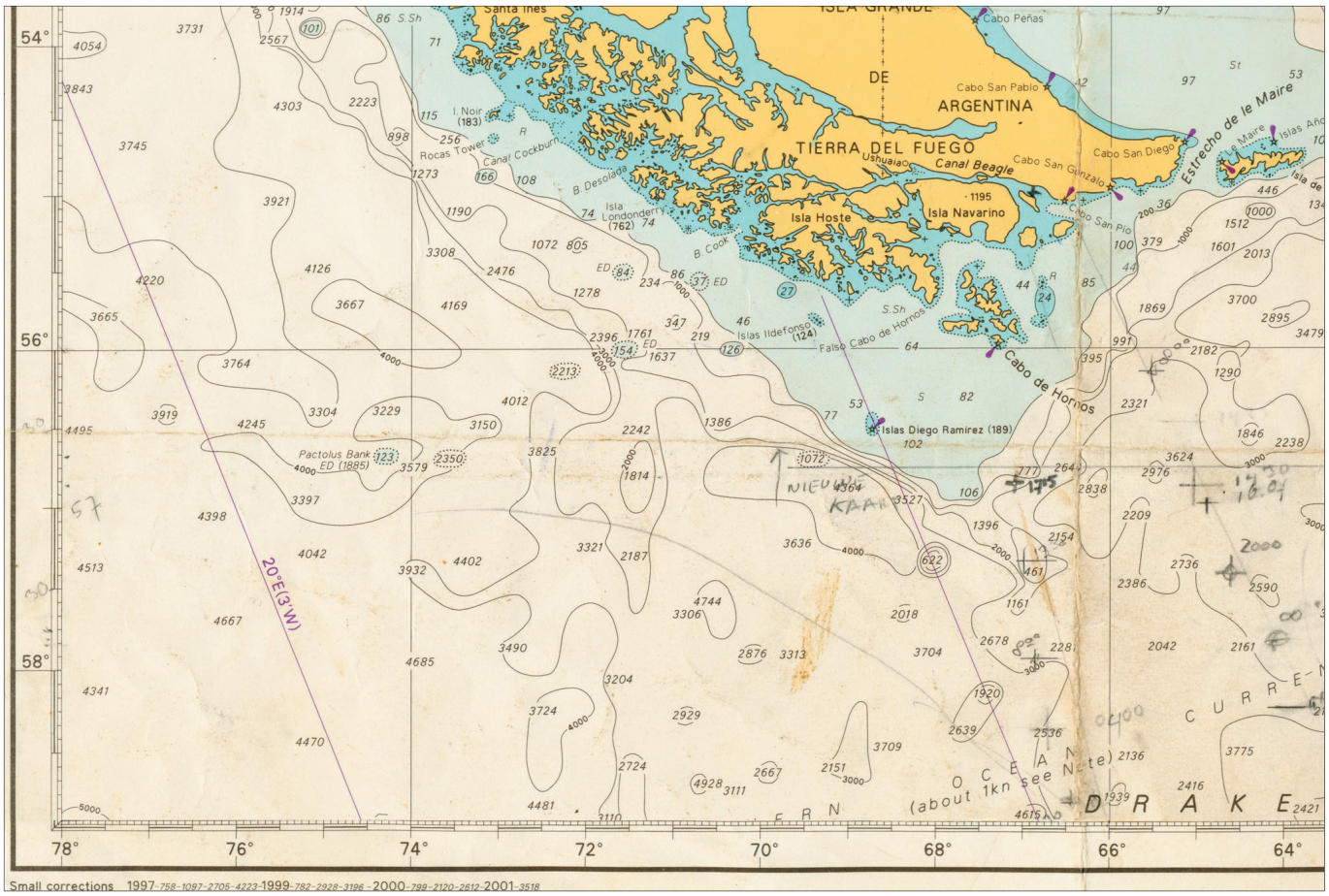
My curiosity led me to do some search on the internet, and the story slowly but surely grabbed me.
I have tried to gather all information that is related to this Banco Pactolus, maybe a vanished island and maybe even a vanished bank.
In my report I present its discovery, a number of charts that mention the Bank, the attempts made later to locate it, some stories that have been related to the Bank, and a quick scan of the bathymetric and seismological angle to its existence.

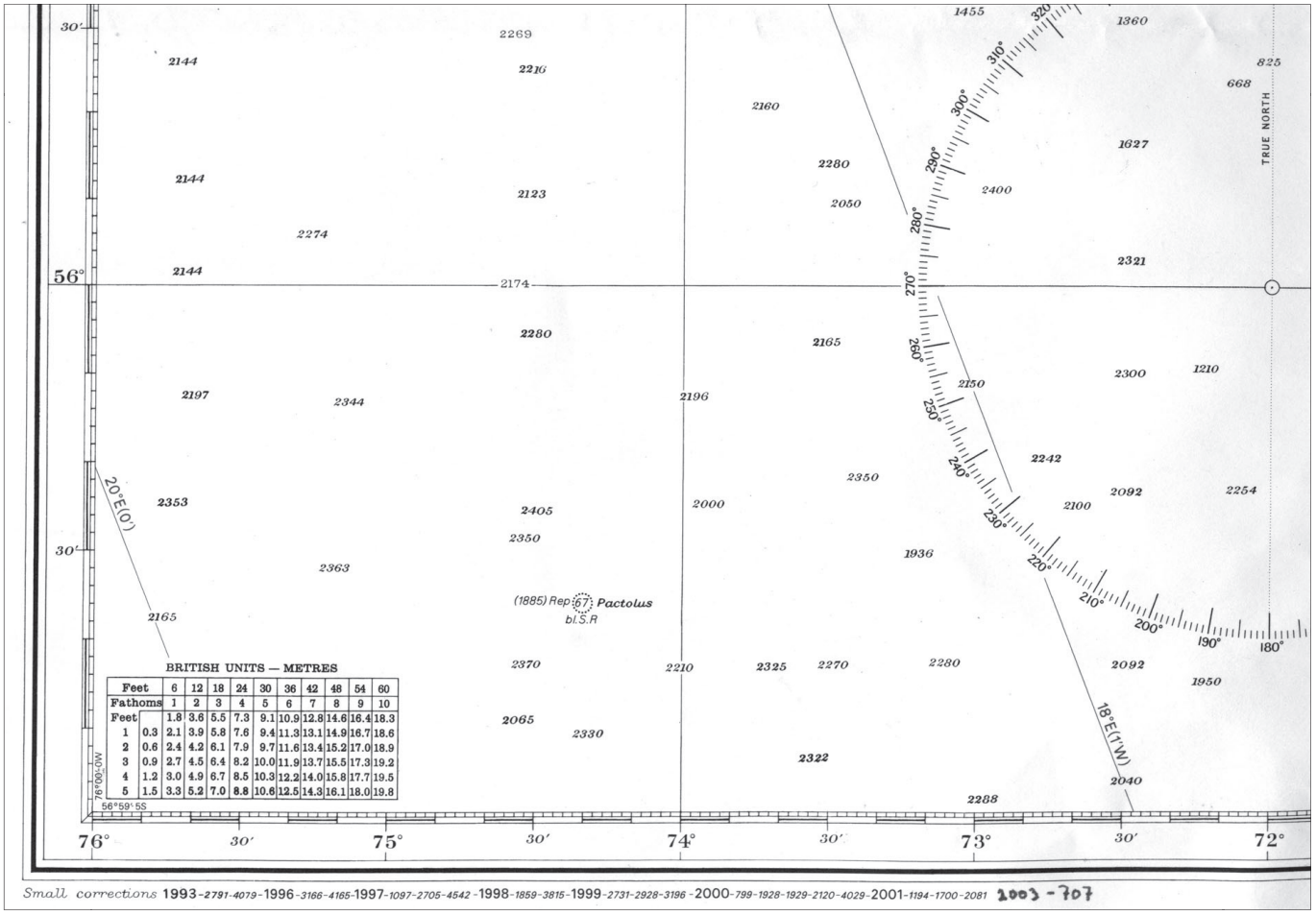
In the bibliography and illustrations I present the main documents of my research.

Note:
The name Pactolus stems from the Phrygian river Pactolus in West-Turkey. In that area the first mintage of coins took place; in the river electrum was found, a natural 40/60 mix of gold and silver. In Greek mythology Pactolus is the river in which King Midas was allowed to wash his power away after he discovered the disadvantages of turning anything he touched into gold. The river is also considered to be the source of King Croesus' wealth. The colour of its water is yellow.

Barque PACTOLUS around 1919.
Photo taken during a National Geographic Society expedition to the Katmai area.
Alaska's Digital Archives (vilda.alaska.edu)

Barque PACTOLUS around 1919.
Photos taken during a National Geographic Society expedition to the Katmai area. Alaska's Digital Archives (vilda.alaska.edu)





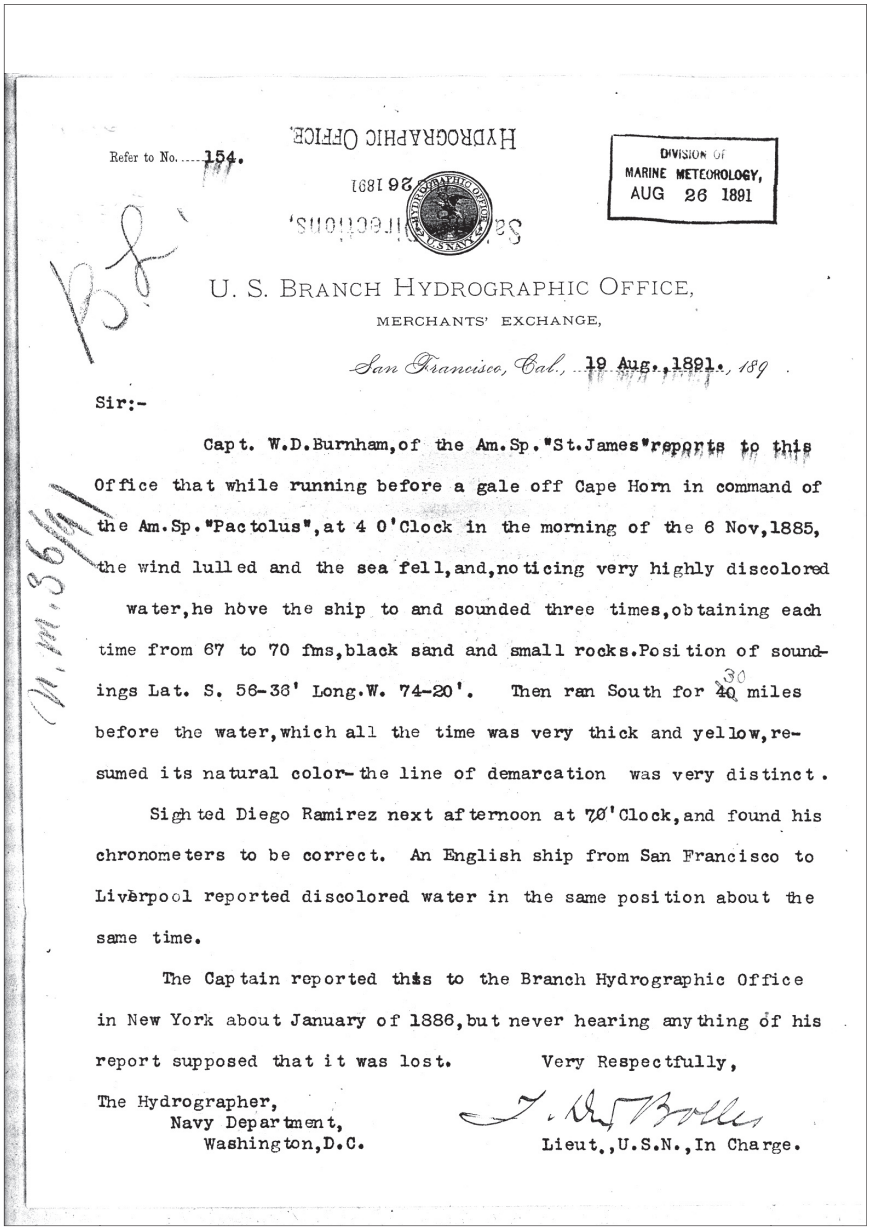
Location of Pactolus Bank on British charts. Above: BA Chart 3200 (sounding in meters). Below: BA Chart 539 (sounding in fathoms)

Chapter 2
ORIGIN

§ 1 Original story

On November 6th, 1885 the American ship PACTOLUS ran before a storm WSW of Cape Horn.
The barque PACTOLUS was the last vessel of the California Shipping Company. She was launched in 1865 in Thomaston, Maine.
At 4 o'clock in the morning the wind lulled and the sea fell, while at the same time Captain William Dixon Burnham noticed a very high discolouring of the sea, the water being thick and yellow. He hove to and sounded three times, each time bringing up black sand and small rocks from a depth of 67 to 70 fathoms. The position of the soundings was 56°36'S and 74°20'W. They continued to the south for 30 miles before the water resumed its natural color. The line of demarcation was very distinct. His sighting of the Diego Ramirez Islands on the afternoon of the next day proved his chronometers to be correct.
An English ship, going from San Francisco to Liverpool, reported a same discolouring at the same place at about the same time.

I have not been able to identify the latter ship.



HYDROGRAPHIC OFFICE.

Refer to No. 154.

DIVISION OF MARINE METEOROLOGY, AUG 26 1891

U. S. BRANCH HYDROGRAPHIC OFFICE,
MERCHANTS' EXCHANGE,

San Francisco, Cal., 19 Aug., 1891. 189

Sir:-

Capt. W.D.Burnham, of the Am.Sp."St.James" reports to this Office that while running before a gale off Cape Horn in command of the Am.Sp."Pactolus", at 4 0'Clock in the morning of the 6 Nov, 1885, the wind lulled and the sea fell, and, noticing very highly discolored water, he hove the ship to and sounded three times, obtaining each time from 67 to 70 fms, black sand and small rocks. Position of soundings Lat. S. 56-36' Long. W. 74-20'. Then ran South for 40 30 miles before the water, which all the time was very thick and yellow, resumed its natural color- the line of demarcation was very distinct.

Sighted Diego Ramirez next afternoon at 7 0'Clock, and found his chronometers to be correct. An English ship from San Francisco to Liverpool reported discolored water in the same position about the same time.

The Captain reported this to the Branch Hydrographic Office in New York about January of 1886, but never hearing anything of his report supposed that it was lost.

Very Respectfully,

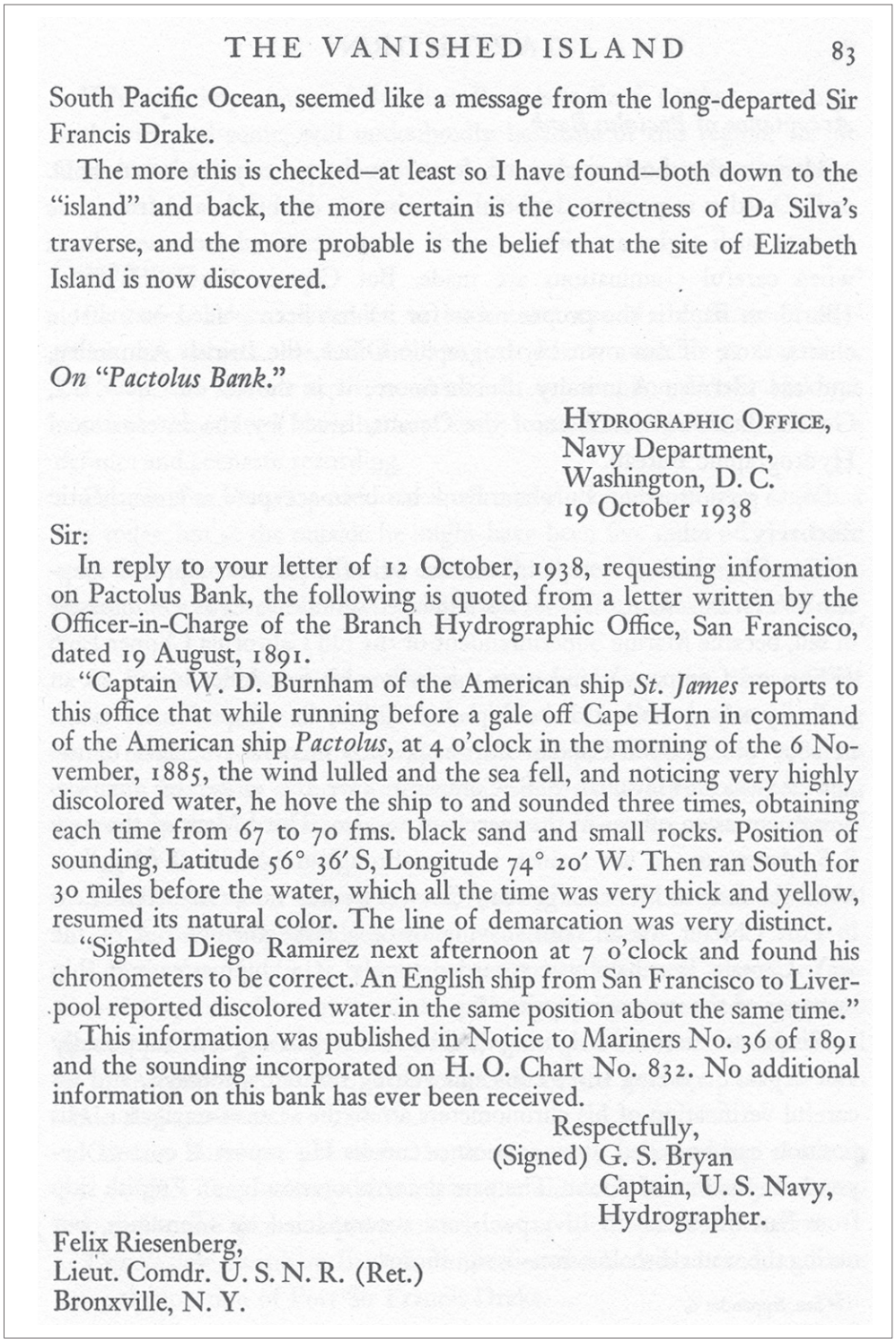
The Hydrographer,
Navy Department,
Washington, D.C.

Lieut., U.S.N., In Charge.

Letter from US HO San Francisco to the US HO HQ in Washington, dated August 10th 1891

All this information is in a letter on Burnham's findings by J.D. Bolles, in his capacity of lieutenant of the US Navy in the US Branch Hydrographic Office at San Francisco. The letter was addressed to the Hydrographer in Washington and dated August 19th, 1891.
The copy I have shows "N.M. 36/91" pencilled in the margin.

The information contained in Bolles' report was sent to Riesenberg in a letter from the Hydrographer on October 19th, 1938; according to the Hydrographer's letter, the information was published in Notice to Mariners No. 36 of 1891.



THE VANISHED ISLAND 83

South Pacific Ocean, seemed like a message from the long-departed Sir Francis Drake.

The more this is checked—at least so I have found—both down to the "island" and back, the more certain is the correctness of Da Silva's traverse, and the more probable is the belief that the site of Elizabeth Island is now discovered.

On "Pactolus Bank."

HYDROGRAPHIC OFFICE,
Navy Department,
Washington, D. C.
19 October 1938

Sir:

In reply to your letter of 12 October, 1938, requesting information on Pactolus Bank, the following is quoted from a letter written by the Officer-in-Charge of the Branch Hydrographic Office, San Francisco, dated 19 August, 1891.

"Captain W. D. Burnham of the American ship *St. James* reports to this office that while running before a gale off Cape Horn in command of the American ship *Pactolus*, at 4 o'clock in the morning of the 6 November, 1885, the wind lulled and the sea fell, and noticing very highly discolored water, he hove the ship to and sounded three times, obtaining each time from 67 to 70 fms. black sand and small rocks. Position of sounding, Latitude 56° 36′ S, Longitude 74° 20′ W. Then ran South for 30 miles before the water, which all the time was very thick and yellow, resumed its natural color. The line of demarcation was very distinct.

"Sighted Diego Ramirez next afternoon at 7 o'clock and found his chronometers to be correct. An English ship from San Francisco to Liverpool reported discolored water in the same position about the same time."

This information was published in Notice to Mariners No. 36 of 1891 and the sounding incorporated on H. O. Chart No. 832. No additional information on this bank has ever been received.

Respectfully,
(Signed) G. S. Bryan
Captain, U. S. Navy,
Hydrographer.

Felix Riesenberg,
Lieut. Comdr. U. S. N. R. (Ret.)
Bronxville, N. Y.

I have not been able to obtain a copy of this Notice to Mariners (NtMs), although I sent several requests to various US offices.

The chance that the sources had been talking of a British NtMs has been excluded. The British NtMs 36 of 1891 (see next page) is one page and only mentions the establishment of a fog signal at the Dice Head Lighthouse in the Penobscot Bay, Maine.

Riesenberg's book, page 83.
HO Chart No. 832 is not correct; it should read "823".

The substance of this Notice, as soon as it is received on board, is to be inserted in red ink on the Charts affected by it; and introduced into the margin, or otherwise in the page of the Sailing Directions to which it relates. *See* Admiralty Instructions, 1887, Navigation and Pilotage, p. 368.

NOTICE TO MARINERS.

[*No.* 36 *of the year* 1891.]

(The bearings are Magnetic, and those concerning the visibility of lights are given from seaward.)

UNITED STATES—MAINE.

PENOBSCOT BAY.

FOG SIGNAL AT DICE HEAD LIGHTHOUSE.

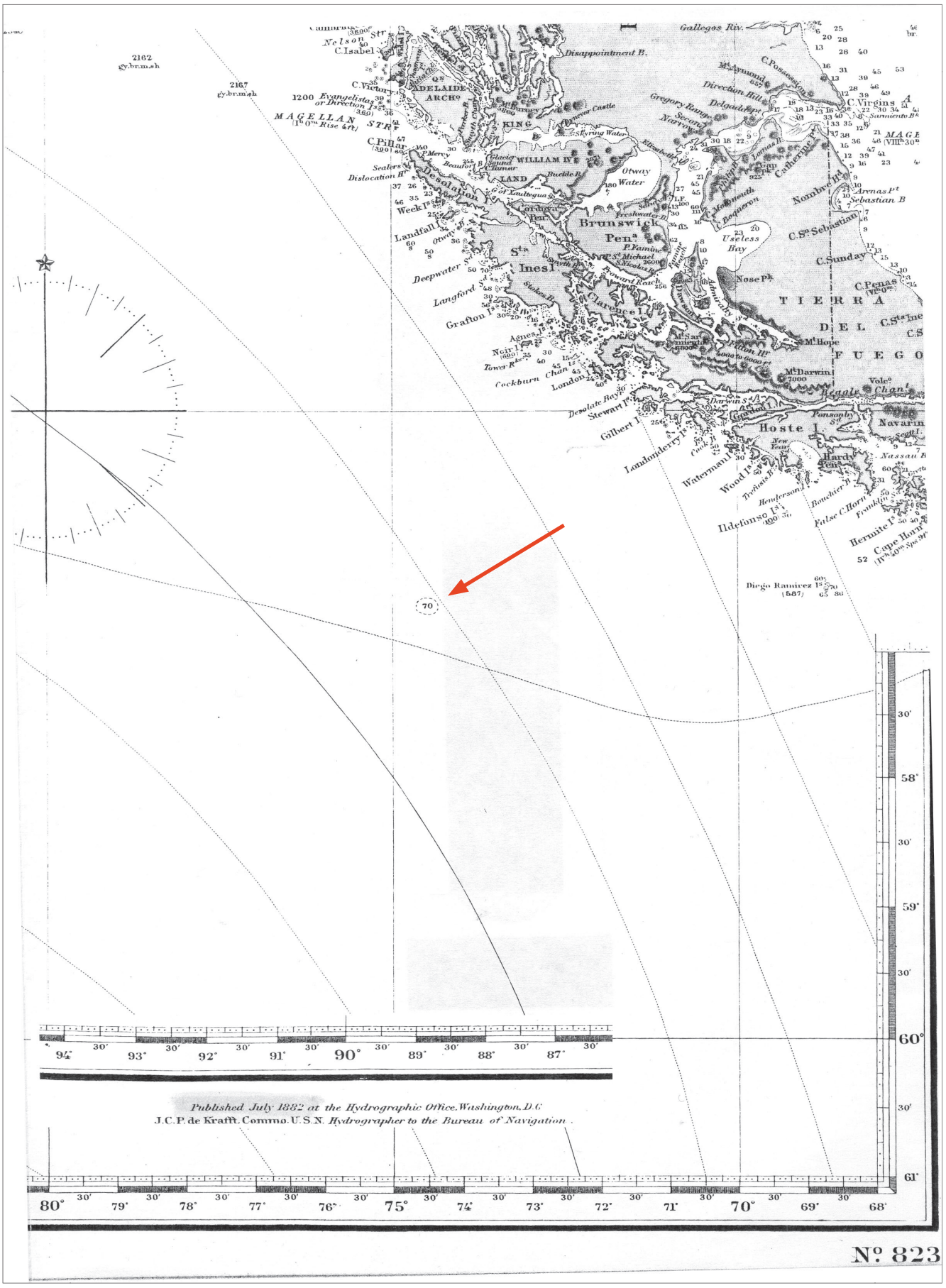
The United States Government has given Notice, dated 30th December 1890, that a fog signal has been established at Dice head lighthouse, east shore of Penobscot bay:—

The fog signal at Dice head lighthouse is a bell, which, during thick or foggy weather, will be struck by hand, in answer to signals from passing vessels.

Approximate position, lat. 44° 23′ N., long. 68° 49′ W.

This Notice affects the following Admiralty Charts:—Bay of Fundy to Block island, No. 2492; Penobscot bays, No. 620: Also, Admiralty List of Lights on the Eastern coasts of North America, 1890, No. 524; and Sailing Directions for the principal ports of the United States, 1882, page 21.

British Admiralty's NtMs 36 of 1891



Location of the Pactolus Bank on the US HO Chart 823 (edition 1882)

§ 2 Questions regarding the story

It is not clear where Captain Burnham's PACTOLUS ended her life.

There is also some confusion about the year in which he discovered the Bank.

The Chilean Navy, answering some of my questions, mentioned a PACTOLUS from Nova Scotia. According to them, this PACTOLUS sank "at those latitudes" on February 10th, 1882. The fact is mentioned in the *Anuario Hidrográfico de la Marina de Chile Vol No. XIV, 1889*.
This answer came from Rodrigo Núñez, acting director of SHOA, the Servicio Hidrográfico y Oceanográfico de la Armada de Chile. In his letter to me he stated:

> After analysing the historical antecedents of the Service I could infer that apparently the toponym of 'Pactolus' is derived from the Nova Scotia ship name which was wrecked at those latitudes on 10th of February 1882.

That was three years before Burnham's discovery of the Bank!
Either this was not Burnham's American PACTOLUS, or the source of the year 1885 (the letter from the USHO San Francisco branch) is not correct. There is a copy of US Chart 823 issued in July 1882, which has the Bank detailed (previous page). It is not clear whether the Bank was on the original edition of July 1882, or that it was added at a later date.

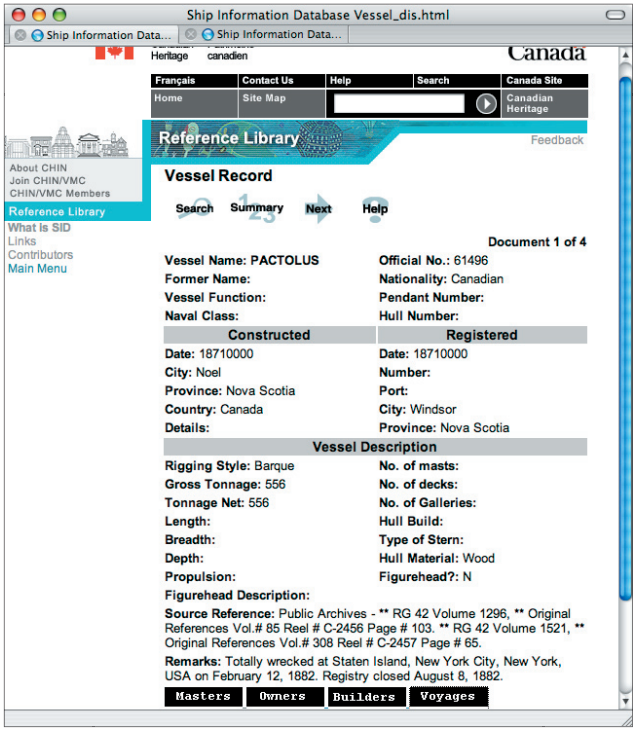
A camp the survivors of this Nova Scotia PACTOLUS had built on Isla de los Estados, was discovered by a French expedition in late 1883. This expedition, commanded by captain Louis-Ferdinand Martial on board of the naval vessel LA ROMANCHE, was in the area in relation to a solar eclipse annex Venus passage on December 6th, 1882. They left Cherbourg on July 17th, 1882 and made camp on Hoste Island, Bahia Orange. On Isla de los Estados they found tree inscriptions at the isthmus between Puerto Cook in the north and Puerto Vancouver in the south. The wreckage was in Puerto Vancouver.

The date that Mr. Núñez gave me, may be incorrect: in another source, the Patagonia Database, I found February 12th instead of February 10th. The ship according to this source, had been commanded by Captain W.I. MacLennan.
Then there is a PACTOLUS that sank at Staten Island, NY in the USA, on February 12th, 1882. At least, that is what the database of the Maritime Museum in Halifax (ship ref. 61496) says. According to this same database, her last voyage was from Liverpool (departure date December 10th, 1881) to Cape Horn (arrival date February 12th, 1882). Here the master's name is William L. McLellan.

Apparently there is a mix-up of the two Staten Islands. Since Cape Horn, clearly not being a 'destination', is mentioned as her last port, I assume that this is the way that they reported her loss in the database record.

My emails to the Halifax museum and to the Canadian Heritage Information Network, where the Ship Information Database that is used in Halifax belongs to, went unanswered.

My conclusion is that the ship that is mentioned by the Chilean Navy as well as the one that is in the Canadian database, are both not the PACTOLUS of Captain Burnham.
Burnham's PACTOLUS was American, built in 1865 and there is mentioning of a sale to the Naknek Packing Company as a salmon packer in 1911. This bark PACTOLUS around 1919 took part in the National Geographic Society expedition to the Katmai area in Alaska.
The other PACTOLUS was Canadian, built in 1871 and wrecked in 1882.



The database of the Canadian Hertitage Information Network with the data of the other PACTOLUS, among them the mentioning of the wrong Staten Island (left) and the details of her last voyage (right).

Chapter 3
Hydrographic documents

§ 1 United Kingdom

The Banco Pactolus is on several British Admiralty (BA) publications. They are:

- BA Chart BA 4609 (1:3,500,000)
- BA Chart BA 3200 (1:3,250,000). It says “E.D.” (Existence doubtful)
- BA Chart BA 539 (10th edition, 2003, 1:1,750,000): Pactolus (1885) Rep, 67 fathoms, Bl.S.R.
- BA Pilot NP6, South American Pilot Volume II: “Pactolus Bank (56-42S, 74-18W), with a depth of 123 m over a bottom of black sand and rock, was reported in 1885; its existence is doubtful”

§ 2 United States

According to the United States National Oceanic & Atmospheric Administration (NOAA) the following US documents mention the Bank:

- H.O. Chart 22032 (20th edition 20, 1997, 1:564,500): Banco Pactolus, ED, 122 meters, position 56º40.0’S 74º20.5’W
- H.O. Chart E5812 (1st edition, 1981, 1:590,100): Pactolus Bank, Rep (1885), 67 fathoms, position 56º42.0’S 74º19.5’W
- H.O. Chart 29002 (9th edition, 1996, 1:1,500,000): unnamed, ED (Rep 1885), 122 meters, position 56º36’S 74º19’W
- Original publishing: H.O. Chart No. 823 (edition 1882)

§ 3 Argentina

The Argentinean Servicio de Hydrographia Naval mentions the Bank on the following chart:

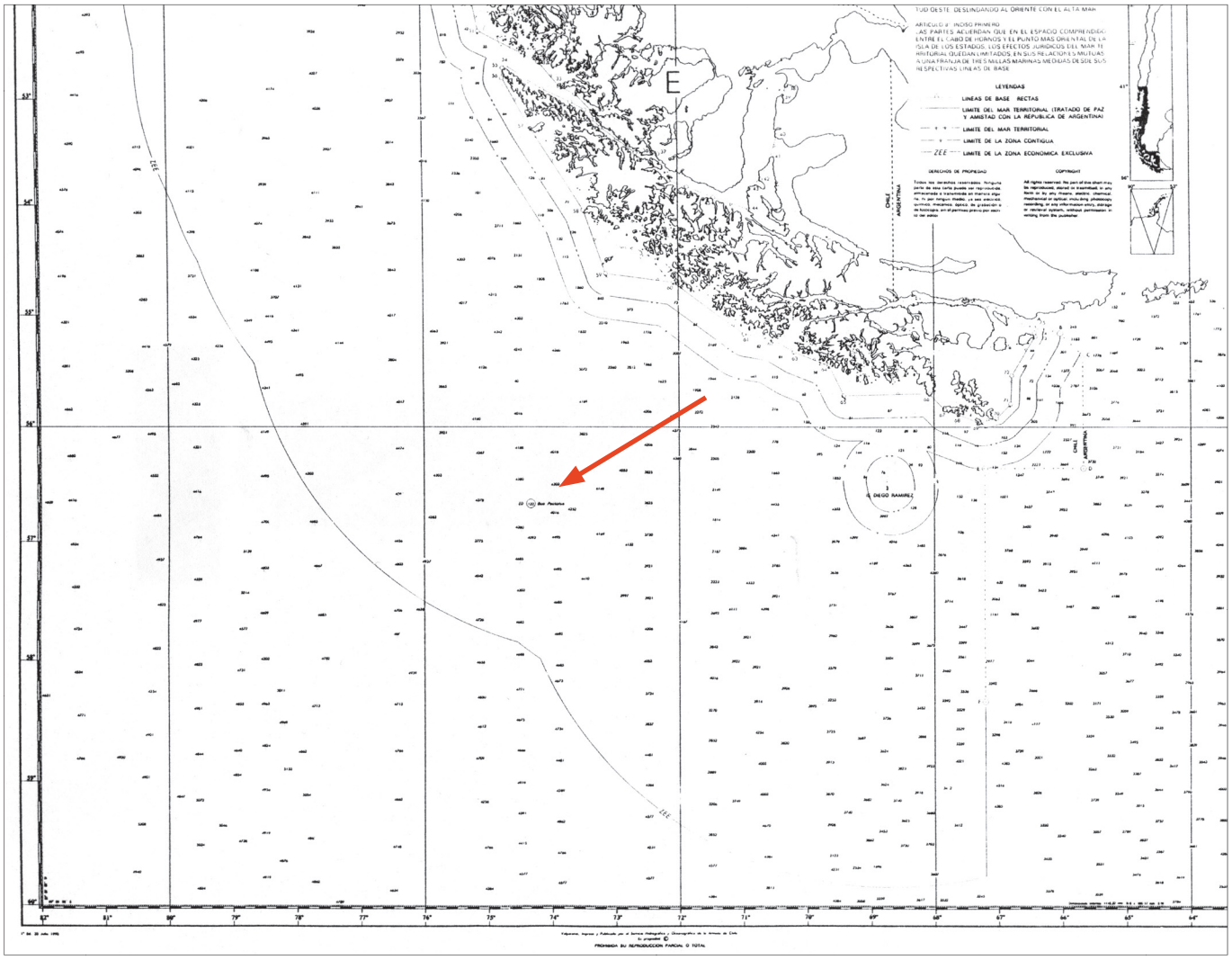
- Chart H-4 (4th edition, 2002, 1:1,500,000): Bco Pactolus ED, 122 meters, position 56º40’S 74º19’W

§ 4 Chile

The Servicio Hidrográfico y Oceanográfico de la Armada de Chile (SHOA) mentions the Bank on the following charts:

- SHOA 8 (bank, 122 m)
- SHOA 15 (bank, 122 m)
- SHOA 22 (bank, 122 m)
- SHOA 56 (56º40'S 74º20')
- SHOA 570 (bank, 122 m)
- SHOA 910 (sounding, 122 m)

According to the SHOA their source "apparently" is in the British charts, like BA 4609.



Location of the Pactolus Bank on the Chilean SHOA Chart 8 (sounding in meters)

Chapter 4
Attempts to locate the bank

§ 1 Discovery II

Riesenberg on page 81 mentions several soundings between the meridians of 75⁰ and 80⁰W made in the Pactolus Bank area by the in 1929 built British Royal Research Ship DISCOVERY II, Captain Scott's former ship, during an expedition in the years 1933 to 1935.
Riesenberg states that they "failed to run lines in 74⁰20'W to check on the bank".
His source is an article by Dr. Neil A. Mackintosh in the October 19, 1935 edition of Nature, entitled: *Recent Antarctic research undertaken by the Discovery Committee*. The article itself does not mention the Bank at all. It has a map of the voyages, showing a number of north-south tracks near the meridian of 78⁰W, probably soundings. No reason at all is given for these tracks.
There are not enough details in the article nor on the map to be able to comment on Riesenberg's remarks.

Watercolour painting of the DISCOVERY II by artist Ray Honisett

Recent Antarctic Research

undertaken by the Discovery Committee

THE R.R.S. *Discovery II*, 1933-35

By Dr. N. A. Mackintosh

THE R.R.S. *Discovery II* returned to England at the end of her third commission in June this year. During the twenty months she was away, her work included an examination of the whale population and its environment in the vicinity of the Atlantic and Pacific ice edge; repeated observations on a particular meridian for the study of seasonal variations; some repetition and consolidation of observations taken in previous commissions; a survey of the South Shetland Islands and, on the homeward voyage, a new line of stations running parallel to the East African coast from Marion Island in 47° S. to the Gulf of Aden. Throughout the commission, routine soundings were taken with the echo-sounding machines. The route taken by the ship on her various cruises is indicated in Fig. 1.

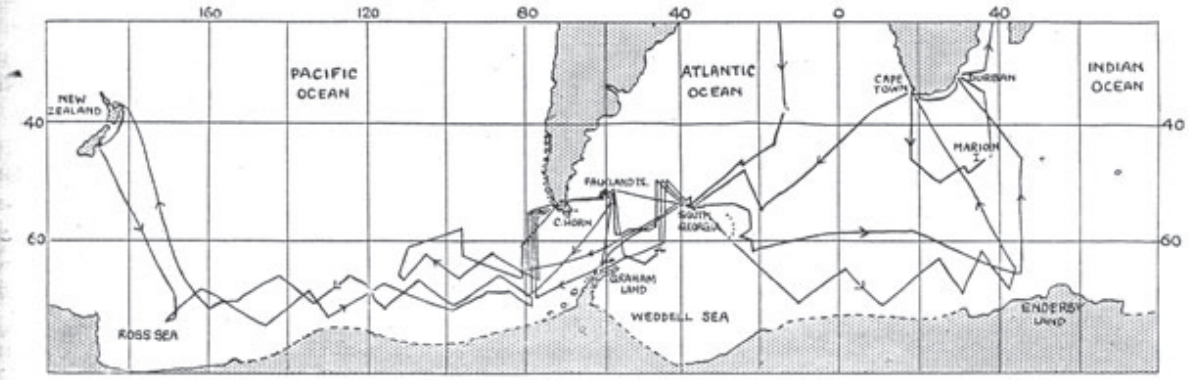


FIG. 1. Voyages of the R.R.S. *Discovery II*, 1933–35.

Several years will, of course, be required for a proper examination of the material and data collected, but certain interesting points have already arisen and may be briefly described here.

During several long cruises, in which a zigzag course was followed to the north of the pack ice, direct and continuous observations on whales were combined with routine observations on plankton and hydrology. These observations provide material for comparing the abundance of whales in the Pacific and Atlantic sectors of the Antarctic, and an important correlation has been observed between the distribution of whales and the surface temperature of the water. It is anticipated that the most important results of the commission's work will in due course be derived from these cruises off the ice edge.

The section of the work which may be said to have yielded the quickest results was that in which a line of stations on the meridian of 80° W. was repeated in December, March, September, October and November. Each line included from seven to ten stations at intervals of about 90 miles, and in each case the southernmost station was at the edge of the pack ice. The routine at each station included a series of six vertical hauls with closing 70-cm. plankton nets from various depths between 1,000 metres and the surface. A preliminary examination of the samples from these nets reveals a large-scale migration of the plankton which is likely to be of far-reaching importance.

It is known that in the Antarctic zone there is a thin layer of cold Antarctic surface water which moves with a northerly component away from the ice. Below this is the so-called warm deep water flowing south, and below this again the cold Antarctic bottom water which moves northwards. Fig. 2 shows six vertical sections of the line in 80° W. The first shows diagrammatically the circulation of the surface water and the warm deep water. The other five show the newly ascertained distribution of the copepod *Rhincalanus gigas* in the various months in which the line was repeated. They are drawn quite roughly and may need adjustment when the material is examined in more detail. In December (summer) the species is mainly concentrated near the surface. In March it tends to sink to the north of the Antarctic convergence. In September (winter) it is practically confined to the warm deep water, and in October and November (spring) it has largely regained the Antarctic surface water. Similar seasonal changes in level have been

Page 1 of Mackintosh's article on the Discovery II expedition, in *Nature*, issue of October 1935

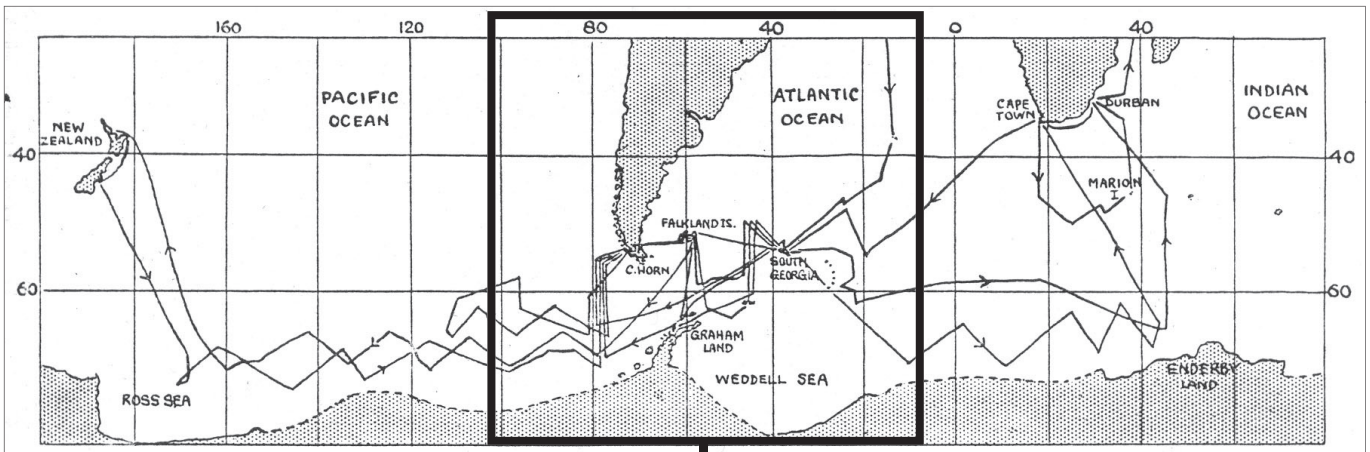
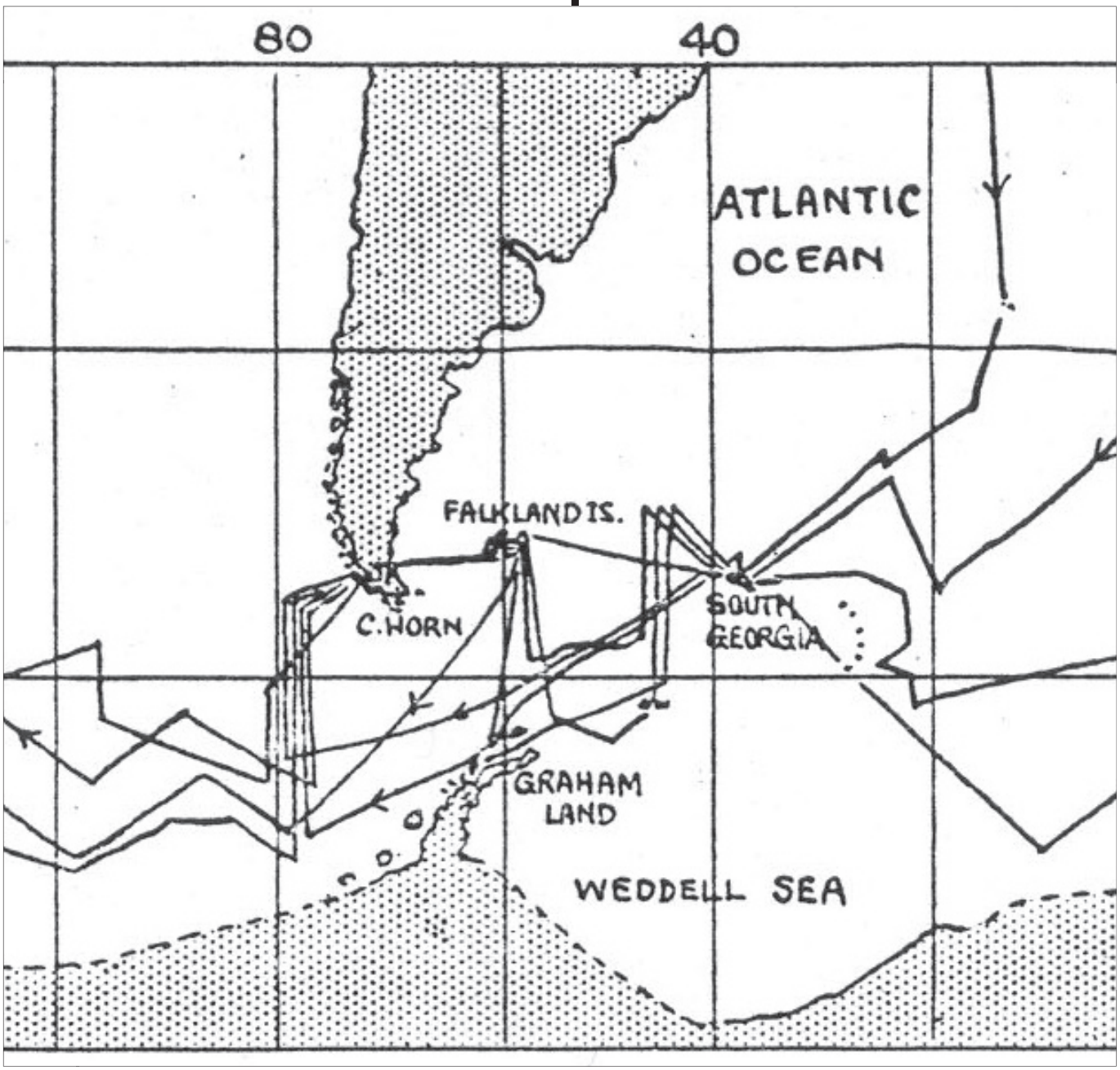


FIG. 1. Voyages of the R.R.S. *Discovery II*, 1933–35.



Detail from Mackintosh's article on the Discovery II expedition, in *Nature*, issue of October 1935

§ 2 USS Bear of Oakland (AG-29)

The US naval vessel BEAR was already an old sailing ship when they did their survey of the Pactolus Bank area in 1940.
The cutter BEAR was built in Dundee, Scotland as a sealer in 1874. She was rigged as a barkentine and carried a steam engine. In 1884 she was bought by the US government and used mainly in arctic waters. In 1915 she became part of the US Coast Guard, becoming USCG BEAR (AG-29). Shortly after her retirement, Admiral Byrd decided to buy her back to replace his old ship for his next expedition to the South Pole. She was renamed BEAR OF OAKLAND.

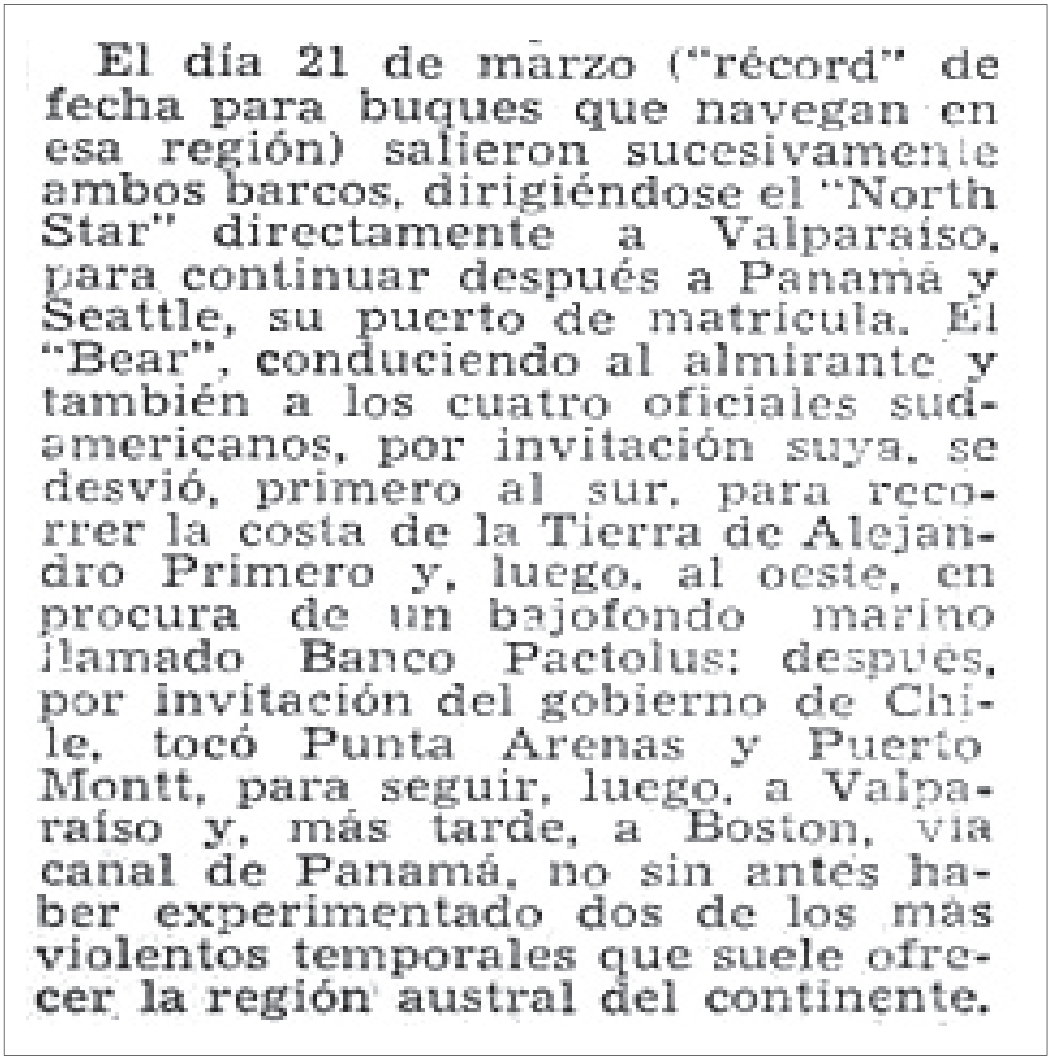
The BEAR, in the US Coast Guard service

The BEAR, in the US Coast Guard service

The United States Antarctic Service Expedition 1939-41 was led by Admiral Richard E. Byrd. The BEAR was commanded by Lieutenant Commander Richard H. Cruzen, USN. The second ship of the expedition was the NORTH STAR, commanded by Captain Isak Lystad.
On the way back, after leaving East Base on the Palmer Peninsula on March 21st, 1940, they surveyed the location of the Pactolus Bank.

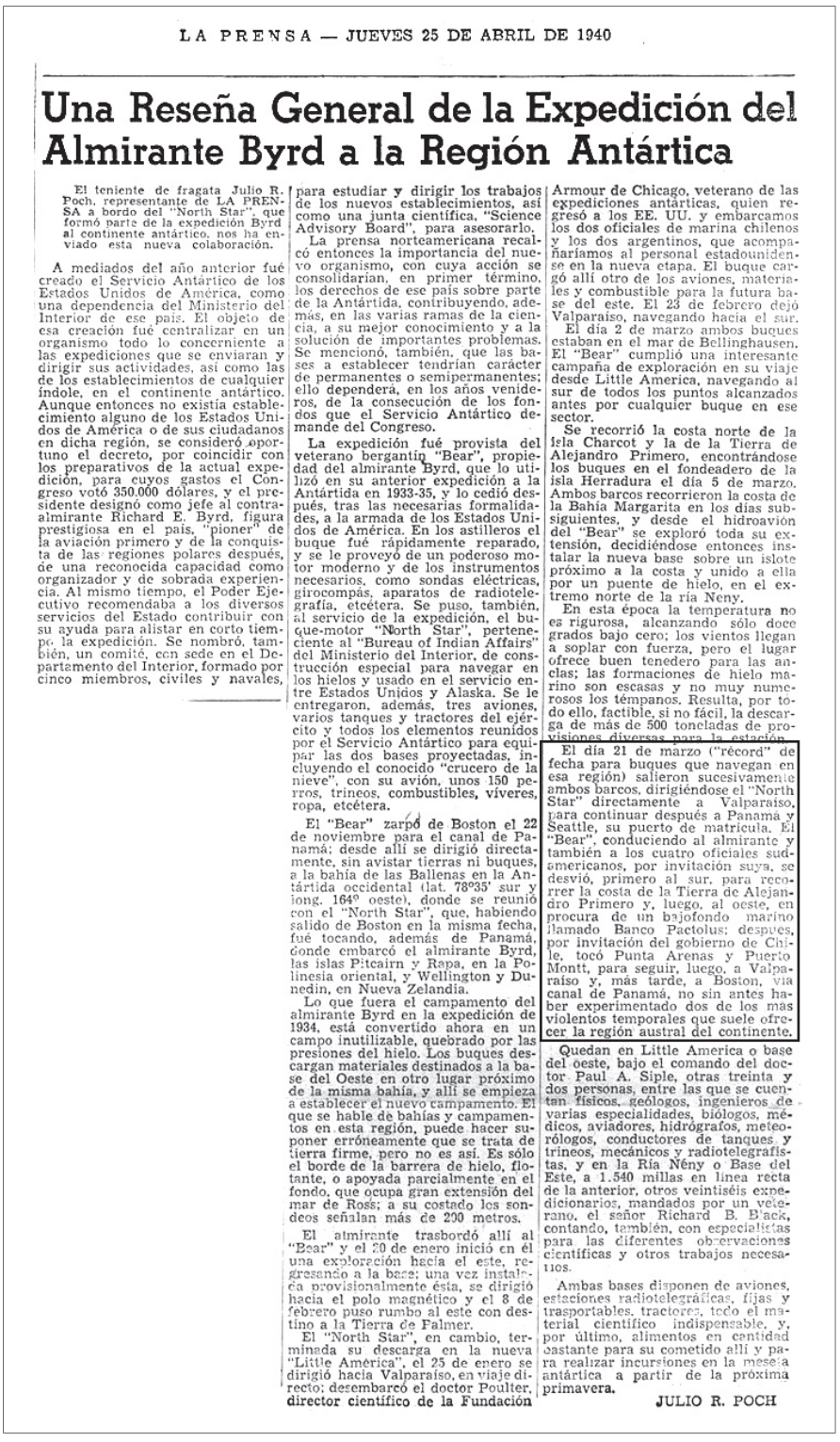
I now quote from an article in the Buenos Aires newspaper *La Prensa*, edition of April 25th, 1940.

> On March 21 (a record date for ships navigating in the area) both ships left in succession. The NORTH STAR went directly to Valparaiso to proceed later to Panama and Seattle, her registration port. The BEAR, taking the Admiral and the four Latin American officers at his invitation, made a detour first to the south to the coast of Alexander I, and then to the west looking for a bank called Pactolus Bank. Then by invitation of the Chilean Government she proceeded to Punta Arenas and Puerto Montt, then to Valparaiso and later to Boston via Panama, experiencing during the journey two of the most violent storms that the southern region of the continent usually offers.



El día 21 de marzo ("récord" de fecha para buques que navegan en esa región) salieron sucesivamente ambos barcos, dirigiéndose el "North Star" directamente a Valparaíso, para continuar después a Panamá y Seattle, su puerto de matrícula. El "Bear", conduciendo al almirante y también a los cuatro oficiales sudamericanos, por invitación suya, se desvió, primero al sur, para recorrer la costa de la Tierra de Alejandro Primero y, luego, al oeste, en procura de un bajofondo marino llamado Banco Pactolus; después, por invitación del gobierno de Chile, tocó Punta Arenas y Puerto Montt, para seguir, luego, a Valparaíso y, más tarde, a Boston, vía canal de Panamá, no sin antes haber experimentado dos de los más violentos temporales que suele ofrecer la región austral del continente.

Taken from an article on BEAR's expedition in the newspaper *La Prensa* (Buenos Aires), April 25th, 1940



LA PRENSA — JUEVES 25 DE ABRIL DE 1940

Una Reseña General de la Expedición del Almirante Byrd a la Región Antártica

El teniente de fragata Julio R. Poch, representante de LA PRENSA a bordo del "North Star", que formó parte de la expedición Byrd al continente antártico, nos ha enviado esta nueva colaboración.

A mediados del año anterior fué creado el Servicio Antártico de los Estados Unidos de América, como una dependencia del Ministerio del Interior de ese país. El objeto de esa creación fué centralizar en un organismo todo lo concerniente a las expediciones que se enviaran y dirigir sus actividades, así como las de los establecimientos de cualquier índole, en el continente antártico. Aunque entonces no existía establecimiento alguno de los Estados Unidos de América o de sus ciudadanos en dicha región, se consideró oportuno el decreto, por coincidir con los preparativos de la actual expedición, para cuyos gastos el Congreso votó 350.000 dólares, y el presidente designó como jefe al contraalmirante Richard E. Byrd, figura prestigiosa en el país, "pioner" de la aviación primero y de la conquista de las regiones polares después, de una reconocida capacidad como organizador y de sobrada experiencia. Al mismo tiempo, el Poder Ejecutivo recomendaba a los diversos servicios del Estado contribuir con su ayuda para alistar en corto tiempo la expedición. Se nombró, también, un comité, con sede en el Departamento del Interior, formado por cinco miembros, civiles y navales, para estudiar y dirigir los trabajos de los nuevos establecimientos, así como una junta científica, "Science Advisory Board", para asesorarlo.

La prensa norteamericana recalcó entonces la importancia del nuevo organismo, con cuya acción se consolidarían, en primer término, los derechos de ese país sobre parte de la Antártida, contribuyendo, además, en las varias ramas de la ciencia, a su mejor conocimiento y a la solución de importantes problemas. Se mencionó, también, que las bases a establecer tendrían carácter de permanentes o semipermanentes; ello dependerá, en los años venideros, de la consecución de los fondos que el Servicio Antártico demande del Congreso.

La expedición fué provista del veterano bergantín "Bear", propiedad del almirante Byrd, que lo utilizó en su anterior expedición a la Antártida en 1933-35, y lo cedió después, tras las necesarias formalidades, a la armada de los Estados Unidos de América. En los astilleros el buque fué rápidamente reparado, y se le proveyó de un poderoso motor moderno y de los instrumentos necesarios, como sondas eléctricas, girocompás, aparatos de radiotelegrafía, etcétera. Se puso, también, al servicio de la expedición, el buque-motor "North Star", perteneciente al "Bureau of Indian Affairs" del Ministerio del Interior, de construcción especial para navegar en los hielos y usado en el servicio entre Estados Unidos y Alaska. Se le entregaron, además, tres aviones, varios tanques y tractores del ejército y todos los elementos reunidos por el Servicio Antártico para equipar las dos bases proyectadas, incluyendo el conocido "crucero de la nieve", con su avión, unos 150 perros, trineos, combustibles, víveres, ropa, etcétera.

El "Bear" zarpó de Boston el 22 de noviembre para el canal de Panamá; desde allí se dirigió directamente, sin avistar tierras ni buques, a la bahía de las Ballenas en la Antártida occidental (lat. 78°35' sur y long. 164° oeste), donde se reunió con el "North Star", que, habiendo salido de Boston en la misma fecha, fué tocando, además de Panamá, donde embarcó el almirante Byrd, las islas Pitcairn y Rapa, en la Polinesia oriental, y Wellington y Dunedin, en Nueva Zelandia.

Lo que fuera el campamento del almirante Byrd en la expedición de 1934, está convertido ahora en un campo inutilizable, quebrado por las presiones del hielo. Los buques descargan materiales destinados a la base del Oeste en otro lugar próximo de la misma bahía, y allí se empieza a establecer el nuevo campamento. El que se hable de bahías y campamentos en esta región, puede hacer suponer erróneamente que se trata de tierra firme, pero no es así. Es sólo el borde de la barrera de hielo, flotante, o apoyada parcialmente en el fondo, que ocupa gran extensión del mar de Ross; a su costado los sondeos señalan más de 200 metros.

El almirante trasbordó allí al "Bear" y el 20 de enero inició en él una exploración hacia el este, regresando a la base; una vez instalada provisionalmente ésta, se dirigió hacia el polo magnético y el 8 de febrero puso rumbo al este con destino a la Tierra de Palmer.

El "North Star", en cambio, terminada su descarga en la nueva "Little America", el 25 de enero se dirigió hacia Valparaíso, en viaje directo; desembarcó el doctor Poulter, director científico de la Fundación Armour de Chicago, veterano de las expediciones antárticas, quien regresó a los EE. UU. y embarcamos los dos oficiales de marina chilenos y los dos argentinos, que acompañaríamos al personal estadounidense en la nueva etapa. El buque cargó allí otro de los aviones, materiales y combustible para la futura base del este. El 23 de febrero dejó Valparaíso, navegando hacia el sur.

El día 2 de marzo ambos buques estaban en el mar de Bellinghausen. El "Bear" cumplió una interesante campaña de exploración en su viaje desde Little America, navegando al sur de todos los puntos alcanzados antes por cualquier buque en ese sector.

Se recorrió la costa norte de la isla Charcot y la de la Tierra de Alejandro Primero, encontrándose los buques en el fondeadero de la isla Herradura el día 5 de marzo. Ambos barcos recorrieron la costa de la Bahía Margarita en los días subsiguientes, y desde el hidroavión del "Bear" se exploró toda su extensión, decidiéndose entonces instalar la nueva base sobre un islote próximo a la costa y unido a ella por un puente de hielo, en el extremo norte de la ría Neny.

En esta época la temperatura no es rigurosa, alcanzando sólo doce grados bajo cero; los vientos llegan a soplar con fuerza, pero el lugar ofrece buen tenedero para las anclas; las formaciones de hielo marino son escasas y no muy numerosos los témpanos. Resulta, por todo ello, factible, si no fácil, la descarga de más de 500 toneladas de provisiones diversas para la estación.

El día 21 de marzo ("récord" de fecha para buques que navegan en esa región) salieron sucesivamente ambos barcos, dirigiéndose el "North Star" directamente a Valparaíso, para continuar después a Panamá y Seattle, su puerto de matrícula. El "Bear", conduciendo al almirante y también a los cuatro oficiales sudamericanos, por invitación suya, se desvió, primero al sur, para recorrer la costa de la Tierra de Alejandro Primero y, luego, al oeste, en procura de un bajofondo marino llamado Banco Pactolus; después, por invitación del gobierno de Chile, tocó Punta Arenas y Puerto Montt, para seguir, luego, a Valparaíso y, más tarde, a Boston, vía canal de Panamá, no sin antes haber experimentado dos de los más violentos temporales que suele ofrecer la región austral del continente.

Quedan en Little America o base del oeste, bajo el comando del doctor Paul A. Siple, otras treinta y dos personas, entre las que se cuentan físicos, geólogos, ingenieros de varias especialidades, biólogos, médicos, aviadores, hidrógrafos, meteorólogos, conductores de tanques y trineos, mecánicos y radiotelegrafistas, y en la Ría Nény o Base del Este, a 1.540 millas en línea recta de la anterior, otros veintiséis expedicionarios, mandados por un veterano, el señor Richard B. Black, contando, también, con especialistas para las diferentes observaciones científicas y otros trabajos necesarios.

Ambas bases disponen de aviones, estaciones radiotelegráficas, fijas y trasportables, tractores, todo el material científico indispensable, y, por último, alimentos en cantidad bastante para su cometido allí y para realizar incursiones en la meseta antártica a partir de la próxima primavera.

JULIO R. POCH

Article on BEAR's expedition in the newspaper *La Prensa* (Buenos Aires), April 25th, 1940

The log of the BEAR (see next pages) shows that they once crossed the area, on the evening of March 25th and the next morning; the log mentions "a northerly gale with a very rough sea" during those hours, and "mountainous seas", recording the wind speed at 10 Bft. No mention is made of any soundings, let alone their results.

LOG OF THE UNITED STATES SHIP BEAR (Name) AG29. (Identification Number)

AT PASSAGE Palmer Land, Antarctica. TO Punta Arenas, Chile. Monday 25 March 1940. (Day) (Date) (Month)

ZONE DESCRIPTION plus 5. R.H. CRUZEN, Lt.Comdr., U. S. Navy, Commanding.

Hour	"All Shaft" Average Revolutions	By Revs. Nautical Miles	By Revs. Tenths	By Log Nautical Miles	By Log Tenths	Course (P. C.) Gyro X. Mag. (Indicate which)	Wind Direction	Wind Force	Barometer Height in Inches	Barometer Reading at Ther.	Temperature Air, Dry Bulb	Temperature Air, Wet Bulb	Temperature Water at Surface	Weather, by Symbols	Clouds Form	Clouds Moving From—	Clouds Amount	Visibility	Sea Condition	Sea Swells From—
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A.M. 1	89	8	1			355	WNW	4	29.88	45	45	45	45	c	STCU	W	10	1	3	W
2	89	8	1			355	WNW	4	29.84	39	39	39	45	c	STCU	W	10	1	3	W
3	89	8	1			355	NW	4	29.82	40	40	40	45	c	STCU	W	10	1	3	W
4	89	8	1			355	NW	3	29.80	45	45	45	45	c	STCU	W	10	20	3	NW
5	89	8	1			355	NW	4	29.76	45	45	45	47	c	STCU	W	10	20	4	NW
6	89	8	1			355	NW	5	29.75	45	45	45	47	c	STCU	NW	10	30	4	NW
7	89	8	1			355	NNW	4	29.72	45	45	45	47	c	STCU	N	10	40	4	NW
8	89	8	1			355	NNW	4	29.68	46	46	45	47	c	STCU	N	10	40	4	NW
9	89	8	1			000	NNW	4	29.66	46	46	46	47	c	STCU	N	10	40	4	NW
10	89	8	1			000	NNW	4	29.62	46	46	46	47	c	STCU	N	10	50	4	NW
11	89	8	1			000	NNW	4	29.58	46	46	46	47	c	STCU	N	10	50	4	NW
12	89	8	1			000	NNW	4	29.54	47	47	46	47	c	STCU	N	10	50	4	NW
P.M. 13	89	8	1			000	NNW	8	29.49	48	48	47	47	c	STCU	N	10	50	7	NW
14	89	8	1			000	N	8	29.44	48	48	47	49	c	STCU	N	10	50	7	NW
15	89	8	1			000	N	8	29.39	48	48	48	49	c	STCU	N	10	50	7	NW
16	89	8	1			000	N	8	29.34	48	48	48	49	o	-	-	10	25	7	N
17	89	8	1			000	N	9	29.30	48	48	48	49	o	STCU	N	10	25	8	N
18	64	5	7			000	N	9	29.22	48	48	48	48	o	STCU	N	10	15	8	N
19	64	5	7			005	N	9	29.18	48	48	48	47	o	STCU	N	10	15	8	N
20	64	5	7			000	N	9	29.12	48	48	48	47	o	STCU	N	10	15	9	N
21	64	5	7			000	N	10	29.04	48	48	48	47	o	STCU	N	10	15	9	N
22	64	5	7			005	N	10	28.96	48	48	48	47	o			10	10	9	N
23	64	5	7			355	N	10	28.92	48	48	48	47	o			10	10	9	N
24	64	5	7			355	N	10	28.94	47	47	47	47	o			10	10	9	N

Noon
- Latitude 57° 13' 00" S.
- Longitude 74° 33' 00" W.

8 p.m.
- Latitude 56° 47' 30" S.
- Longitude 74° 18' 30" W.

8 a.m.
- Latitude 57° 25' 00" S.
- Longitude 74° 35' 00" W.

Current: Set ____ Drift ____

Gyrocompass in Use
Error ____

Standard Mag. Compass
Compass No. ____
S. H. ____
Error ____
Variation ____
Deviation ____

Fuel
- Received 0
- Expended 562
- On hand 42652

Water
- Distilled 60
- Received 0
- Expended 162
- On hand 3601

Before Leaving Port
Draft for'd ____
Draft aft. ____

After Entering Port
Draft for'd ____
Draft aft. ____

Magazine Temperatures:
Maximum NONE.
Minimum ____

DRILLS AND EXERCISES

Division	Morning	Afternoon
1		
2		
3		
4		
5		
6		
7		
8		
9		
	NONE.	NONE. I

SUBMERGED RUN DATA—SUBMARINES

	1	2	3	4	5
Run No. (Serial)					
Time to submerge					

From the log of the BEAR

N. Nav. 43
(Mar. 1929)

Page 189

UNITED STATES SHIP BEAR Monday (Day) 25 (Date) March (Month), 1940.

ZONE DESCRIPTION plus 5. (+)

REMARKS

0-4

Steaming and sailing singly enroute Marguerite Bay, Palmer Land to Punta Arenas, Chile via Pactolus Bank on course 355 pgc and true, 333 psc, standard speed 89 RPM, 8.1 knots. Jib, foretopmast staysail and storm trysail set. Several rain squalls encountered this watch, barometer falling slowly.

W.H. DALY,
Chief Boatswain, USN.

4-8

Steaming and sailing as before on course 355 pgc and true, 333 psc, speed 89 RPM, 8.1 knots. 0530 furled jib and foretopmast staysail.

G.J. DUFEK,
Lieutenant, USN.

8-12

Steaming and sailing as before on course 355 pgc and true, 333 psc, speed 89 RPM, 8.1 knots. Storm trysail only sail set. 0800 mustered on stations, no absentees. 0840 doused and furled storm trysail. 0900 changed course to 000 pgc and true, 340 psc. Barometer falling steadily and seas building up.

F.I. DAWLEY,
Chief Machinist, USN.

12-16

Steaming as before on course 000 pgc and true, 340 psc, speed 89 RPM, 8.1 knots. Ship pitching and rolling heavily, wind of force 8, sky overcast.

J.J. NEIMO,
Lieutenant Commander, USN.

16-18

Steaming as before on course 360 pgc and true, 335 psc, at standard speed, 90 RPM, 8.2 knots. 1625 reduced speed to 1/2 speed to reduce pounding of ship. Heading into a northerly gale with a very rough sea. Holding steerage way with one half speed. The ship pitching and rolling deeply, but riding easily.

W.N. CROFFORD, Jr.,
Lieutenant, USN.

18-20

Steaming as before on course 360 pgc and true, 335 psc, at standard speed 64 RPM, 5.7 knots. 1800 changed course to 005 pgc and true, 335 psc. 1919 changed course to 360 pgc and true. 1922 changed course to 350 pgc and true, 327 psc. 1926 changed course to 360 pgc and true, 335 psc. Heading into a northerly gale with a very rough sea. Barometer dropping rapidly.

G.J. DUFEK,
Lieutenant, USN.

20-24

Steaming as before on course 000 pgc and true, 335 psc, standard speed 91 RPM, 8.3 knots, steaming at half speed keeping steerage way into storm. 2125 changed course to 005 pgc and true, 345 psc. 2225 changed course to 000 pgc and true, 335 psc. 2258 changed course to 355 pgc and true, 333 psc. Wind force 10, seas 9. Wind veering to northwest, barometer dropping rapidly.

W.H. DALY,
Chief Boatswain, USN.

Approved: R.H. CRUZEN,

Examined: G.J. Dufek

From the log of the BEAR

LOG OF THE UNITED STATES SHIP BEAR (Name) AG29. (Identification Number)

AT PASSAGE Palmer Land, Antarctica. TO Punta Arenas, Chile. Tuesday (Day) 26 (Date) March (Month) 1940.

ZONE DESCRIPTION plus 5. R.H. CRUZEN, Lt.Comdr., U. S. Navy, Commanding.

Hour	"All Ships" Average Revolutions	By Revs. Nautical Miles	By Revs. Tenths	By Log Nautical Miles	By Log Tenths	Course (P. C.) Gyro X. Mag.___ (Indicate which)	Wind Direction	Wind Force	Barometer Height in Inches	Barometer Reading At. Ther.	Temperature Air, Dry Bulb	Temperature Air, Wet Bulb	Temperature Water at Surface	Weather, by Symbols	Clouds Form	Clouds Moving From—	Clouds Amount	Visibility	Sea Condition	Sea Swells From—
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A.M. 1	64	5	7			345	N	10	28.95	46	46	46	47	o			10	10	9	N
2	64	5	7			320	NW	8	28.97	46	46	46	47	o			10	10	9	N
3	64	5	7			310	NW	10	29.01	44	44	44	47	o			10	10	9	N
4	64	5	7			290	WNW	10	29.06	44	40	39	47	r			10	10	9	N
5	64	5	7			290	WNW	10	29.10	45	40	39	47	r			10	10	9	N
6	64	5	7			290	WNW	10	29.14	45	40	40	47	r			10	10	9	N
7	64	5	7			290	WNW	10	29.17	45	40	39	47	r			10	10	9	N
8	64	5	7			290	WNW	10	29.19	45	40	40	47	r			10	10	9	N
9	64	5	7			078	W	8	29.22	45	45	45	47	bc	STCU	W	5	30	9	W
10	64	5	7			078	WNW	7	29.20	46	46	46	47	bc	STCU	W	8	30	7	WNW
11	83	7	5			078	WNW	7	29.16	45	45	45	47	bc	STCU	W	8	30	7	WNW
12	83	7	5			078	WNW	7	29.18	45	45	45	47	c	STCU	W	10	30	7	WNW

s.s.m. Latitude 56° 38' 00" S. Longitude 74° 31' 00" W.

Noon Latitude 56° 40' 00" S. Longitude 73° 57' 00" W.

s.p.m. Latitude 56° 14' 00" S. Longitude 71° 51' 00" W.

Current: Set ___ Drift ___

Gyrocompass in Use — Error 0..

Standard Mag. Compass — Compass No. ___ S. H. ___ Error ___ Variation ___ Deviation ___

Fuel — Received 0 . . Expended 449 On hand 42203.

Water — Distilled 30 Received 0 Expended 131 On hand 3500.

Before Leaving Port — Draft for'd ___ Draft aft. ___

After Entering Port — Draft for'd ___ Draft aft. ___

Magazine Temperatures: Maximum NONE. Minimum ___

DRILLS AND EXERCISES

Division	Morning	Afternoon
1		
2		
3		
4		
5		
6		
7		
8		
9	NONE.	NONE..

P.M.																				
13	87	8	-			078	WNW	7	29.13	46	45	45	47	c	STCU	W	10	30	7	WNW
14	83	7	5			078	WNW	7	29.12	46	45	45	47	o	STCU	W	10	15	7	WNW
15	83	7	5			078	WNW	8	29.11	46	45	46	47	o	STCU	W	10	15	7	WNW
16	83	7	5			078	WNW	8	29.06	45	45	45	47	o	STCU	W	10	15	7	WNW
17	83	7	5			075	WNW	6	29.04	45	45	45	47	or	STCU	W	10	15	7	WNW
18	83	7	5			078	WNW	5	29.02	46	39	39	47	or	STCU	W	10	15	7	WNW
19	83	7	5			078	WNW	5	29.01	46	38	39	47	or	STCU	W	10	5	7	WNW
20	83	7	5			078	WNW	5	29.04	45	45	45	47	or	STCU	W	10	15	7	WNW
21	90	8	2			078	WNW	5	29.06	45	45	44	47	or	STCU	W	10	15	5	WNW
22	90	8	2			078	W	6	29.08	45	45	43	47	or	STCU	W	10	15	5	WNW
23	90	8	2			078	W	6	29.10	45	45	43	47	bc	STCU	W	5	20	5	W
24	90	8	2			078	W	6	29.12	47	46	43	47	bc	STCU	W	5	20	5	W

SUBMERGED RUN DATA—SUBMARINES

	1	2	3	4	5
Run No. (Serial)					
Time to submerge					

From the log of the BEAR

N. Nav. 43
(Mar. 1929)

Page 191

UNITED STATES SHIP BEAR Tuesday (Day) 26 (Date) March (Month), 1940.

ZONE DESCRIPTION plus 5.

REMARKS

0-4

Steaming on course 355 pgc and true, 334 psc, enroute Marguerite Bay, Palmer Land, Antarctica to Punta Arenas, Chile via Pactolus Bank and Cape Horn, speed 64 RPM, 5.7 knots; barely making steerageway. Heading into mountainous seas and winds of gale force, Captain conning. 0026 wind began veering to westward and changed course to 350 pgc and true. 0057 changed course to 345 pgc and true. 0120 changed course to 340 pgc and true. 0149 changed course to 330 pgc and true. 0159 changed course to 320 pgc and true. 0223 changed course to 310 pgc and true, 290 psc. Barometer slowly rising since 2300 when it read 28.92. 0312 changed course to 300 pgc and true, 275 psc. 0340 changed course to 290 pgc and true, 265 psc. Frequent rains throughout watch. Ship rolling and pitching heavily.

P.J. Neimo
P.J. NEIMO,
Lieutenant Commander, USN.

4-8

Steaming as before on course 290 pgc and true, 265 psc, speed 64 RPM, 5.7 knots. Holding steerageway, heading into wind of gale force and mountainous seas. 0508 changed course to 300 pgc and true. 0615 changed speed to slow. 0620 changed speed to half. 0627 changed course to 330 pgc and true, 307 psc. 0631 changed course to 340 pgc and true.

G.J. Dufek
G.J. DUFEK,
Lieutenant, USN.

8-12

Steaming as before on course 340 pgc and true. Steaming ahead at slow speed holding position in wind of gale force and mountainous seas from the west northwest. 0810 set storm trysail. 0820 set course 078 pgc and true, 054 psc. 0830 set fore topmast staysail, lower topsail and foresail, engine ahead half speed. Standing toward Cape Horn. Seas and wind moderating during the watch. 1117 increased speed to full.

W.N. Crofford Jr.
W.N. CROFFORD, jr.,
Lieutenant, USN.

12-16

Steaming and sailing as before on course 078 pgc and true, 055 psc, speed 83 RPM, 7.5 kn ots. Foresail, lower fore topsail, fore topmast staysail, and storm trysail set. 1325 furled foresail. Seas and wind continued with heavy seas and strong wind.

W.H. DALY,
Chief Boatswain, USN.

16-18

Steaming and sailing as before on course 078 pgc and true, 057 psc, speed 83 RPM, 7.5 knots. Foresail, lower topsail, fore topmast staysail, and storm trisail set. Barometer falling, visibility poor, ship rolling and pitching moderately.

P.J. Neimo
P.J. NEIMO,
Lieutenant Commander, USN.

18-20

Steaming and sailing as before on course 078 pgc and true 057 psc, speed 83 RPM, 7.5 knots. Foresail, lower topsail, fore topmast staysail, and storm trisail set. 1730 furled the foresail.

G.J. Dufek
G.J. DUFEK,
Lieutenant, USN.

20-24

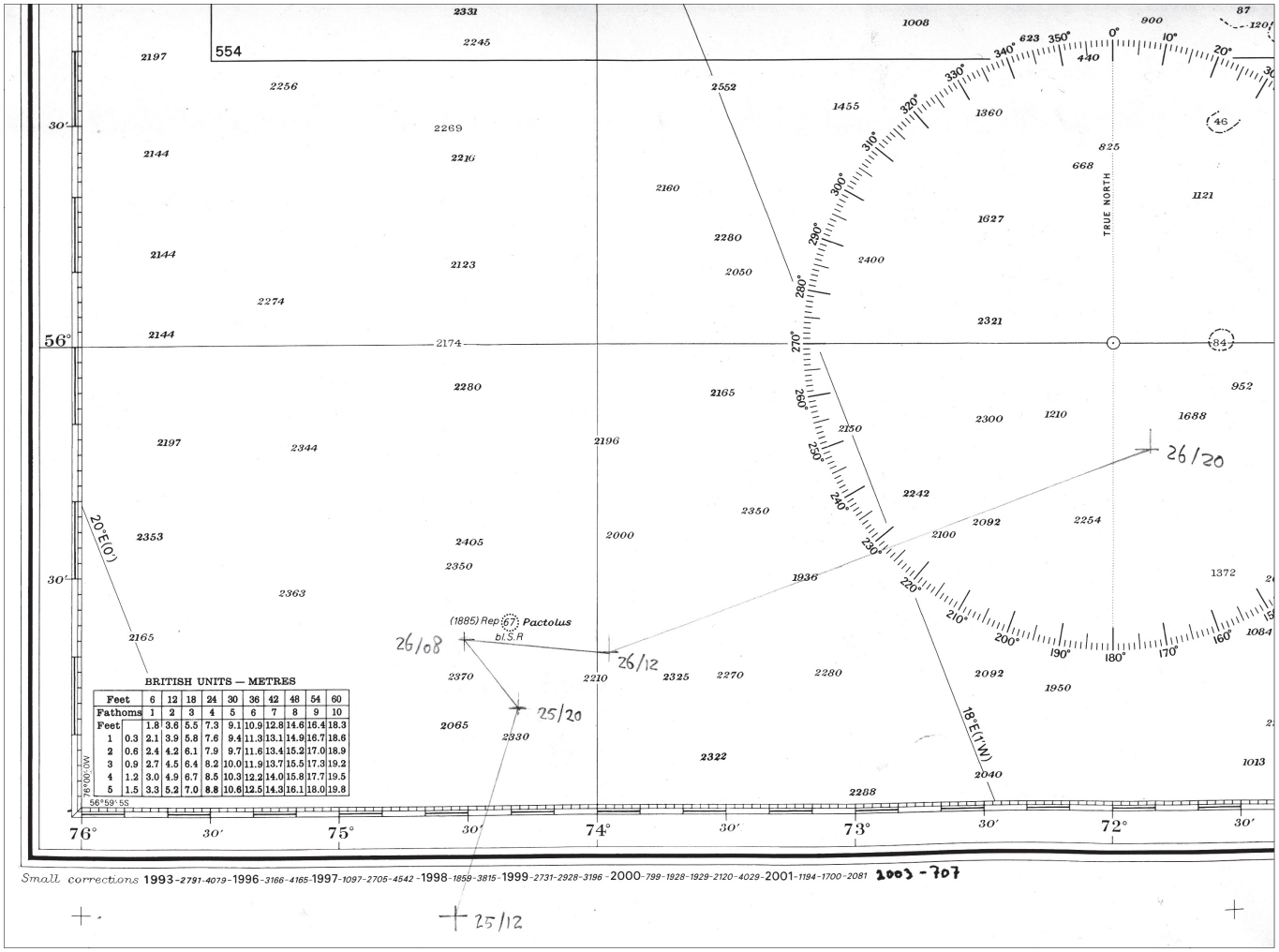
Steaming and sailing as before on course 078 pgc and true, 058 psc, standard speed 90 RPM, 8.2 knots. Sails set: fore topmast staysail, lower topsail, and mizzen storm trysail. Running before westerly winds of gale force with a very rough sea. The ship rolling and pitching deeply. Overcast but visibility excellent.

W.N. Crofford Jr.
W.N. CROFFORD, jr.,
Lieutenant, USN.

Approved: R.H. Cruzen
R.H. CRUZEN.

Examined: G.J. Dufek

From the log of the BEAR



Course of the BEAR on March 25th and 26th, 1940, drawn by the author on BA Chart 539

§ 3 USS Wyandot (AKA-92)

The US naval vessel WYANDOT was a 'Andromeda Class Attack Cargo Ship', built in Oakland, CA in 1944. She was sold for scrapping in 1987.
Her length was 459 ft and her cargo capacity was 4,450 DWT.
The WYANDOT was an auxiliary vessel during Operation Deep Freeze 1, an expedition to the Antarctic in 1955-56.
On her way home in 1955, going west via Auckland, she received orders to change direction and return home going east via Montevideo and to survey the location of the Pactolus Bank en route.
The US Navy reported afterwards:

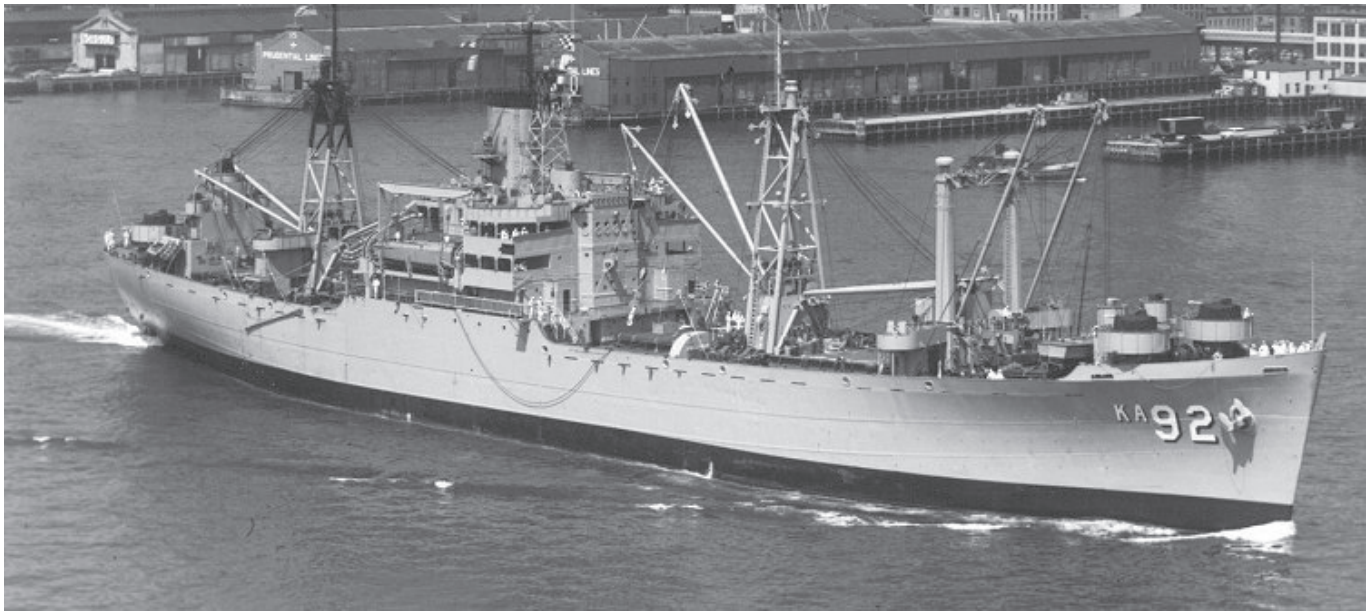
> Pactolus Bank, off the southern tip of Chile, has intrigued historians for years. It is thought by some authorities to be a vestigial island - one upon which Sir Francis Drake is presumed to have landed. Several requests had been received urging the Task Force to investigate Pactolus Bank, if opportune. The Hydrographer, U.S. Navy, was interested in ascertaining the configuration of the bottom and as much oceanographic information as could be obtained. The WYANDOT was instructed to investigate en route to Montevideo from Auckland.

> The WYANDOT's report was received on March 21 [1956]. She had sounded the plotted position of Pactolus Bank as well as the adjacent sea area. The minimum depth obtained was 2040 fathoms, 7 miles southwest of the charted position. "If it exists at all," the WYANDOT added, "it is not at or adjacent to its reported position."

In 2004 I discovered that a reunion of WYANDOT personnel was soon to be held in Mansfield, MA. I contacted organiser Bill Tribble who linked me up with Peter Murphy, who at the time of the survey was the navigational officer on the WYANDOT present at the bridge, registering the survey in the log. Peter helpfully presented me with the story and with copies of the relevant pages of the log.

Peter Murphy wrote the following in an email on September 25th, 2004:

> The WYANDOT was one of the larger USN supply vessels on Deepfreeze I, and after delivering our personnel and cargo to the new base at McMurdo Sound, we made our way north to Auckland, NZ for minor repairs and some relaxation.
> The original orders for our homeward trip to homeport in Norfolk, VA was to sail westabout, to Sydney, Perth, Capetown and thence home to Norfolk. I had worked out this itinerary with our Captain, since we had thought the idea of circumnavigating the world to be romantic and give us a chance to see some new countries. About the 3rd day in Auckland we received an operational message changing our homeward itinerary, much to my dismay, and to go around the southern tip of South America, investigating the possible existence of the Pactolus Bank en route! This was the sole reason for this radical change in our itinerary. So off we went, east, and had a most uncomfortable voyage across the south Pacific and just so-so port calls at Montevideo and Rio.
> We received no other information, historical or hydrographic, from the Navy other than to sound the area in the vicinity of the presumed location of the Pactolus Bank.
> The reports that you have mirror the reports we sent out after our inspection of the area.



The WYANDOT

The only “target” we had was a dot on the H.O. chart labeled Pactolus Bank, “existence doubtful” with a listed depth of some 65 fathoms, surrounded by generally 2000+ for a good distance in all directions.
On March 19th and early on the 20th I had some fairly good celestial sights that established our position before our arrival at the Pactolus Bank.
All ship’s logs were filed with the Navy Department upon completion of the voyage. My only record of the event is my personal diary, as follows:

> *Tues. 20 March - At midnight clocks ahead to +5 zone and I stayed up all night waiting for a large enough opening in the overcast to catch a star or two to confirm our position. At 0200 Lee (a QM1) and I dug out four, guessing at the horizon with the marine sextant, and the miracle was that these cut in. The icebergs were still all over the place, and we began our search pattern for Pactolus Bank at 0300. The least depth recorded was 2040 fathoms in the vicinity. The existence of the Bank is extremely doubtful now. A heavy line of bergs NE of the Bank precluded our investigation after 0430, and we headed for the Diego Ramirez Island group. Sighted islands on schedule at 1440, and left them to starboard at 1600. First land in 15 days, bleak as hell. The sea flattened once in the lee of the mainland at noon, and we passed Cape Horn to port just after sunset. Could make it out vaguely. Hard snow and hail storm. 0000-2400 347 miles.*

This info you pretty much know already, but these notes were the basis of our log entries, which I wrote, and our messages to the Navy Hydro. Throughout our voyage we maintained a very detailed track chart which noted our soundings every 15 minutes of every day while underway. These charts were drawn in ink and contained all the details of our visual and celestial sightings along the track. All these were turned into the US Navy Hydrographic office in Suitland, MD, by me personally either in late April or May of 1956. It was a massive amount of work, very accurate, in the sense that we had a pretty good fathometer, and the soundings were logged religiously, as we couldn’t trust the machine’s printouts. All the WYANDOT’s wanderings were thus recorded, and I have no idea whether any trace of those data exist today. Probably not, unless somebody at the Hydro office squirreled them away. It was the best and most detailed track data from any USN vessels on that Deepfreeze trip, in my opinion, which may be a bit biased. Looking back, I think we were very close to the charted position of the Pactolus Bank, my star sight at 0200 on the 20th was vindicated by our locating the Diego Ramirez Islands exactly where and when we expected to. I still question how anybody “found” a seamount 67 fathoms down in 1885 or whenever. Wasn’t that beyond normal soundings depth in those days?

The copies of the log that Peter Murphy sent me (see next pages) show that on March 20th, 1956 the WYANDOT started its search in the 00:00-04:00 watch “in reported position” with a change of course from an easterly to 180⁰ at 03:20, going back to an easterly course at 03:45, discontinuing the search in the next watch.

The documents that Peter Murphy “turned into the US Navy Hydrographic office in Suitland, MD, (…) either in late April or May of 1956” have not been found.

PASSAGE FROM AUCKLAND, N.Z. TO BUENOS AIRES, ARG. 3/20/56

TABLE I

ZONE TIME	WIND		VISIBILITY	WEATHER	BAROMETER	TEMPERATURE		CLOUDS			SEA WATER TEMPERATURE	WAVES	
	DIRECTION (True)	FORCE (Knots)	(Miles)	(Symbols)	(Inches)	Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		DIRECTION (True)	HEIGHT (Feet)
01	330	34	10	OVC	28.66	47	45	9	1800	SC/AC	44	340	7
02	340	32	10	OVC	28.65	47	45	10	1800	SC/AC	45	350	8
03	345	31	10	OVC	28.65	46	44	10	1800	SC/AC	45	000	8
04	335	34	10	BKN	2866	47	45	5	2000	SC/AS	45	000	9
05	348	28	15	BKN	2866	47	45	7	1800	SC/AC	45	000	8
06	330	34	12	BKN	2870	46	45	8	1800	NS/AS	45	000	8
07	330	32	10	BKN	2875	46	43	8	1800	ST/AS	46	350	8
08	298	32	8	BKN	2880	45	42	9	1800	ST/AS	46	350	10
09	320	28	7	BKN	2882	46	43	8	1800	ST/AS	46	350	10
10	307	23	7	BKN	2884	47	44	7	1800	ST/AS	46	350	10
11	323	28	7	BKN	2887	48	43	7	1800	ST/AC	46	350	10
12	317	26	7	BKN	2888	49	45	6	1800	ST/AC	46	350	10
	//	//	//	//	//	//	//	//	////	///	//	//	//
13	319	26	10	SCT	28.90	49	47	5	2000	ST/AC	45	350	10
14	304	30	10	BKN	28.91	48	45	6	2000	CU/AC/SC	45	340	10
15	304	18	10	BKN	28.92	47	47	6	2000	CU/AC/SC	45	340	10
16	310	8	20	BKN	28.93	50	46	6	2000	NS/AC	49	340	10
17	315	9	20	BKN	28.94	48	44	6	1800	NS/AC	47	340	6
18	049	12	17	BKN	2892	47	44	7	1200	SC/AS	48	300	5
19	055	17	17	BKN	2892	47	44	7	1800	SC/AC	48	300	5
20	050	24	17	BKN	2892	46	45	7	1800	SC/AC	48	300	6
21	053	24	17	SCT	2892	46	44	4	1800	SC/AC	49	300	6
22	060	18	17	SCT	28.92	46	44	1	1800	SC	49	300	5
23	340	26	17	CLR	2892	49	44	0	NC	CLEAR	49	300	4
24	326	36	17	CLR	28.92	49	44	0	NC	CLEAR	49	300	4

POSITION	ZONE TIME
0800	
L 56° 37.5' S	BY 4
λ 72° 27.5' W	BY 4
1200	
L 56° 27.2' S	BY 1
λ 70° 41.4' W	BY 1
2000	
L 56° 02' S	BY 4
λ 67° 47' W	BY 4

LEGEND: 1 — CELESTIAL
2 — ELECTRONIC
3 — VISUAL
4 — D. R.

CURRENT DATA	
FROM 0200 (LZT)	20 MAR (Date)
TO 0526 (LZT)	20 MAR (Date)
SET 180	
DRIFT 1.8	
POSITION BETWEEN FIXES	
MID. L 56° 43' S	
MID. λ 74° 30 W	

CURRENT DATA	
FROM (LZT)	(Date)
TO (LZT)	(Date)
SET	
DRIFT	
POSITION BETWEEN FIXES	
MID. L	
MID. λ	

TABLE II
SYNOPTIC OBSERVATIONS

ZONE TIME OF SYNOPTIC OBSERVATION	Day of week	POSITION OF SHIP			TIME	Total Cloud Amt	WIND		Visibility	WEATHER		PRESSURE	Air Temp	CLOUDS				
		Octant	Latitude	Longitude	GCT		Direction	Speed		Present	Past	Barometer Corrected		Amount of C_L Clouds (Coded)	Type C_L (0-9)	Height of C_L Clouds (Coded)	Type C_M (0-9)	Type C_H (0-9)
	(1-7) (GCT)	(0-3, 5-8)	(Degrees and tenths)	(Degrees and tenths)		(Coded)	(True) (00-36)	(Knots)	(90-99)	(00-99)	(0-9)	(mb)	(°F)					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Y	Q	$L_aL_aL_a$	$L_oL_oL_o$	GG	N	dd	ff	VV	ww	W	PPP	TT	N_h	C_L	h	C_M	C_H

CURRENT DATA	
FROM (LZT)	(Date)
TO (LZT)	(Date)
SET	
DRIFT	
POSITION BETWEEN FIXES	
MID. L	
MID. λ	

Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD				Indicator	Diff Sea Air	Dew Point	WAVES				WAVES				ICE				
		Characteristic (0-9)	Amount Change (mb and tenths)	Indicator	Amount (Eighths)	Type	Height		°F	°F	Indicator	Direction (00-36)	Period	Height	Indicator	Direction (00-36)	Period	HEIGHT	Kind	Effect	Bearing	Distance	Orientation
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
D_s	v_s	a	pp	8	N_s	C	h_sh_s	0	T_sT_s	T_dT_d	1	d_wd_w	P_w	H_w	1	d_wd_w	P_w	H_w	C_2	K	D_i	r	e
				8				0			1				1								
				8				0			1				1								
				8				0			1				1								
				8				0			1				1								
				8				0			1				1								

MILES STEAMED 0000-2400
318

FUEL CONSUMED 0000-2400
127.5 T

From the log of the WYANDOT

UNITED STATES SHIP WYANDOT (AKA-92) Tuesday (Day) 20 (Date) March (Month), 19 56

ADDITIONAL REMARKS

0000-0400 Steaming independently enroute Auckland, New Zealand to Buenos Aires, Argentina in accor ance with CTF-43 message 220223Z of FEB 1956. On course 090°, at speed 16.2 knots. Number 1 and 2 boilers are on the line. Modified condition Bravo is set throughout the ship. 0001 Set clocks ahe 1 hour to conform with +5 time zone. 0320 c/c to 180°. Commenced search for Pactolus Bank in reported position. 0345 c/c to 085°.

R. P. BARRY
ENS, USNR

0400-0800 Steaming as before. 0402 c/c to 070°. 0434 c/c to 089°. Discontinued search for Pactol Bank. 0527 c/c to 080°. 0620 c/c to 089°. 0712 c/c to 070°. 0735 c/c to 089°.

W. C. CAYOT
LCDR, USN

0800-1200 Steaming as before. 0800 Mustered crew on stations. Absentees: none. 0814 c/c to 070° 0935 Made daily inspection of magazines and smokeless powder samples; conditions normal. 1147 c/s 15 knots.

I. N. BONFANTI
CHBOSN, USN

1200-1600 Steaming as before. 1203 c/c to 098°. 1318 Crossed 1000 fathom curve. 1440 Sighted Diego Ramirez Island bearing 098°, distance 26 miles. 1459 Crossed 100 fathom curve. 1510 c/c to 072°.

G. C. PAULES
LT, USN

1600-1800 Steaming as before. 1600 c/s to 12 knots. 1610 Passed Diego Ramirez Island grou p abeam to starboard, distance 3½ miles.

R. P. BARRY
ENS, USNR

1800-2000 Steaming as before.

W. C. CAYOT
LCDR, USN

2000-2400 Steaming as before. 2006 c/c to 074°(T), 074°(PGC). 2045 Commenced rounding Cape Horn. 2053 Passed Cape Horn abeam to port, bearing 344°, distance 9.4 miles. 2202 c/c to 044°(T), 044° (PGC), with Cape Horn bearing 290°(T), at distance 15.5 miles. Weather is moderate.

A. H. COSBY
LTJG, USNR

LINDSEY WILLIAMSON, Captain U. S. N COMMANDING.

P. G. MURPHY, LTJG U. S. N.R NAVIGATOR

TO BE FORWARDED DIRECT TO THE BUREAU OF NAVAL PERSONNEL AT THE END OF EACH MONTH

From the log of the WYANDOT

Chapter 5
Stories connected to the bank

§ 1 Drake

First there is the - above mentioned - story of the island that Drake and his men found shelter on, on October 24th, 1578. This story is detailed in several instances.
The original log of Drake's pilot Da Silva was discovered in the royal library (Archivo General de Indias) in Sevilla, Spain in 1911, by Zelia Nuttall. Her book *New light on Drake*, published by the Hakluyt Society in 1914 as No. XXXIV in the Second Series, contains the text of the log as well of many other original documents.
Several other accounts are worth mentioning. Among them are Richard Hakluyt's publication of 1582, and the notes of Francis Fletcher, preacher on board in the employment of Drake.

§ 2 Riesenberg

Felix Riesenberg, in his book *Cape Horn*, goes to some length to prove that the Bank is the island that Drake found shelter on, stating that there is no case for Cape Horn being the island where Drake anchored on October 24th, 1578, and thus no case for Drake's discovery of Cape Horn. Riesenberg dedicates pages 59-95 to the issue (chapter 'The Vanished Island'), as well as some lengthy appendices.

§ 3 Stommel

In his book *Lost Islands* Henry Stommel goes into the existence of the Bank on pages 77 and 78. His remarks are a summary of some of the stories in this chapter.

§ 4 Lutterfeld

In 1876 or 1877 a Danish ship reported sighting of a volcano in the area. Captain J.O. Lunginers of the LUTTERFELD reported seeing a 30 meter high black island. He stated being 140 miles from the Magellan Straits, on his way to Valparaiso.
He hove to and at dawn took the boat to the island. The water at its edge was hissing and it was too hot to land. The island decreased in size and at 08:00 had disappeared beneath the surface. A few hours later Captain Lunginers was able to sail over the spot.

In the *Annalen der Hydrographie und Maritimen Meteorologie* of the Kaiserliches Admiralität (1878, Volume 6, page 234, sub 3) his report is published. The position is given as 65⁰15'S 72⁰10'W and the time as 04:30.
Remarkably, the latitude is given as 65⁰15'S. This is clearly a mistake, this latitude being far too southerly for commercial ships to sail and clearly not 140 miles from the Straits. Unclear is whether the latitude is supposed to be 55⁰15'S or 56⁰15'S.
Another publication of this story is in the magazine *Globus, Illustrierte Zeitschrift für Länder- und Völkerkunde,* edition 1878 (33. Band, page 159-160). Here it is stated that he reported the experience to "einem Kopenhagener Blatte", an unnamed Copenhagen newspaper. *Globus* has 1876 as the year, while the *Annalen* have 1877 as the year. *Globus* does not give latitude and longitude.
Apparently *Nature* also published the story; the *Globus* article mentions *Nature* as its source. I have not been able to find a copy of this article in *Nature*.

3. Unterseeischer vulkanischer Ausbruch im südlichen Atlantischen Ocean. Das dänische Schiff „*Lutterfeld*", Kapt. J. O. Lunginers, nach Valparaiso bestimmt, befand sich am 10. December 1877 in der Nähe von *Feuerland*, in ungefähr 65° 15′ S-Br und 72° 10′ W-Lg, etwa 140 Sm von der *Magellan-Strasse,* als es früh am Morgen (4½ʰ a. m.) beinahe an eine kleine Insel von ca. 30 m Höhe angelaufen wäre, wo die Karten keine Spur von Land angaben. Das Schiff drehte bei, bis der Tag anbrach, worauf der Kapitän mit einem Boote nach der neuen Insel fuhr, welche seit ihrer ersten Wahrnehmung bereits allmählich an Grösse abgenommen hatte. Rings um die kegelförmige Felsmasse zischte das Wasser, und obwohl kein Rauch aufstieg, so war dieselbe doch zu heiss, um eine Landung zu gestatten. Langsam fuhr die Insel fort, zu sinken, war um 8ʰ vollständig unter der Meeresfläche verschwunden, und eine Stunde später segelte das Schiff über die Stelle fort, welche kurz vorher die Insel eingenommen hatte.

From the *Annalen der Hydrographie und Maritimen Meteorologie* of the Kaiserlichen Admiralität (1878, Vol. 6, page 234, sub 3)

2. Entfärbung des Wassers im östlichen Theile der Magellan-Strasse. Der Kapt. Juan José Latorre, Kommandant des chilenischen Schiffes „*Magellanes*“ hat nach der „*Noticias hidrográficas*“ No. 44 *Santiago* 1877 berichtet, dass die stets gleichmässige Farbe, welche die Gewässer zwischen der Insel *Isabel* und der östlichen Ausfahrt der ersten Meerenge *(First Narrows)* zeigen, am deutlichsten in den beiden Meerengen *(First and second Narrows)* und zwischen denselben ausgeprägt ist. Wird die Meeresoberfläche daselbst vollständig von der Sonne beleuchtet, so ist die Farbe des Wassers, in Folge der grossen Mengen von Sand und anderer Bodenbestandtheile, die es mit sich führt, etwas weisslich. Diese Farbe hat das Wasser sowohl oberhalb der Bank *Triton*, als auch auf 6,4 m Wassertiefe in der ersten Meerenge, sodann auch an den Stellen, wo es am tiefsten ist. In Folge dessen lassen sich die Untiefen schlecht erkennen und die Schiffe sind gezwungen, ausser einem guten Ausguck, häufig ihre Position zu bestimmen. Die Kabbelungen, an welchen die Untiefen auch häufig erkannt werden können, machen sich nicht immer bemerkbar.

3. Unterseeischer vulkanischer Ausbruch im südlichen Atlantischen Ocean. Das dänische Schiff „*Lutterfeld*“, Kapt. J. O. Lunginers, nach Valparaiso bestimmt, befand sich am 10. December 1877 in der Nähe von *Feuerland*, in ungefähr 65° 15′ S-Br und 72° 10′ W-Lg, etwa 140 Sm von der *Magellan-Strasse*, als es früh am Morgen ($4^1/_2{}^h$ a. m.) beinahe an eine kleine Insel von ca. 30 m Höhe angelaufen wäre, wo die Karten keine Spur von Land angaben. Das Schiff drehte bei, bis der Tag anbrach, worauf der Kapitän mit einem Boote nach der neuen Insel fuhr, welche seit ihrer ersten Wahrnehmung bereits allmählich an Grösse abgenommen hatte. Rings um die kegelförmige Felsmasse zischte das Wasser, und obwohl kein Rauch aufstieg, so war dieselbe doch zu heiss, um eine Landung zu gestatten. Langsam fuhr die Insel fort, zu sinken, war um 8^h vollständig unter der Meeresfläche verschwunden, und eine Stunde später segelte das Schiff über die Stelle fort, welche kurz vorher die Insel eingenommen hatte.

Anzeige.

Die Fortsetzung der *Segel-Anleitung für die Mündungen der Jade, Weser und Elbe* etc. wird in dem nächsten Hefte (VI) dieser Annalen erfolgen.

Die „*Annalen der Hydrographie*“ etc. erscheinen in Monatsheften. Der halbjährige Pränumerationspreis beträgt ℳ 1,50. Einzelne Nummern kosten ℳ 0,50. Die „*Nachrichten für Seefahrer*“ als Beiblatt zu den „*Annalen der Hydrographie*“ etc. erscheinen wöchentlich einmal, in dringenden Fällen in Extrablättern; Abonnementspreis ℳ 1,00 halbjährlich, einzelne Nummern ℳ 0,05 Man abonnirt auf dieselben — getrennt zu obigen Preisen oder zusammen für ℳ 2,50 halbjährlich — ausserhalb bei den Postanstalten und Buchhandlungen (in *Kiel* bei der Universitätsbuchhandlung, Schumacherstrasse 86), in *Berlin* bei der Expedition, Kochstrasse 69.

Gedruckt und in Kommission bei E. S. Mittler & Sohn.
Königliche Hofbuchhandlung.
Kochstrasse 69/70.

From the *Annalen der Hydrographie und Maritimen Meteorologie* of the Kaiserlichen Admiralität (1878, Vol. 6, page 234, sub 3)

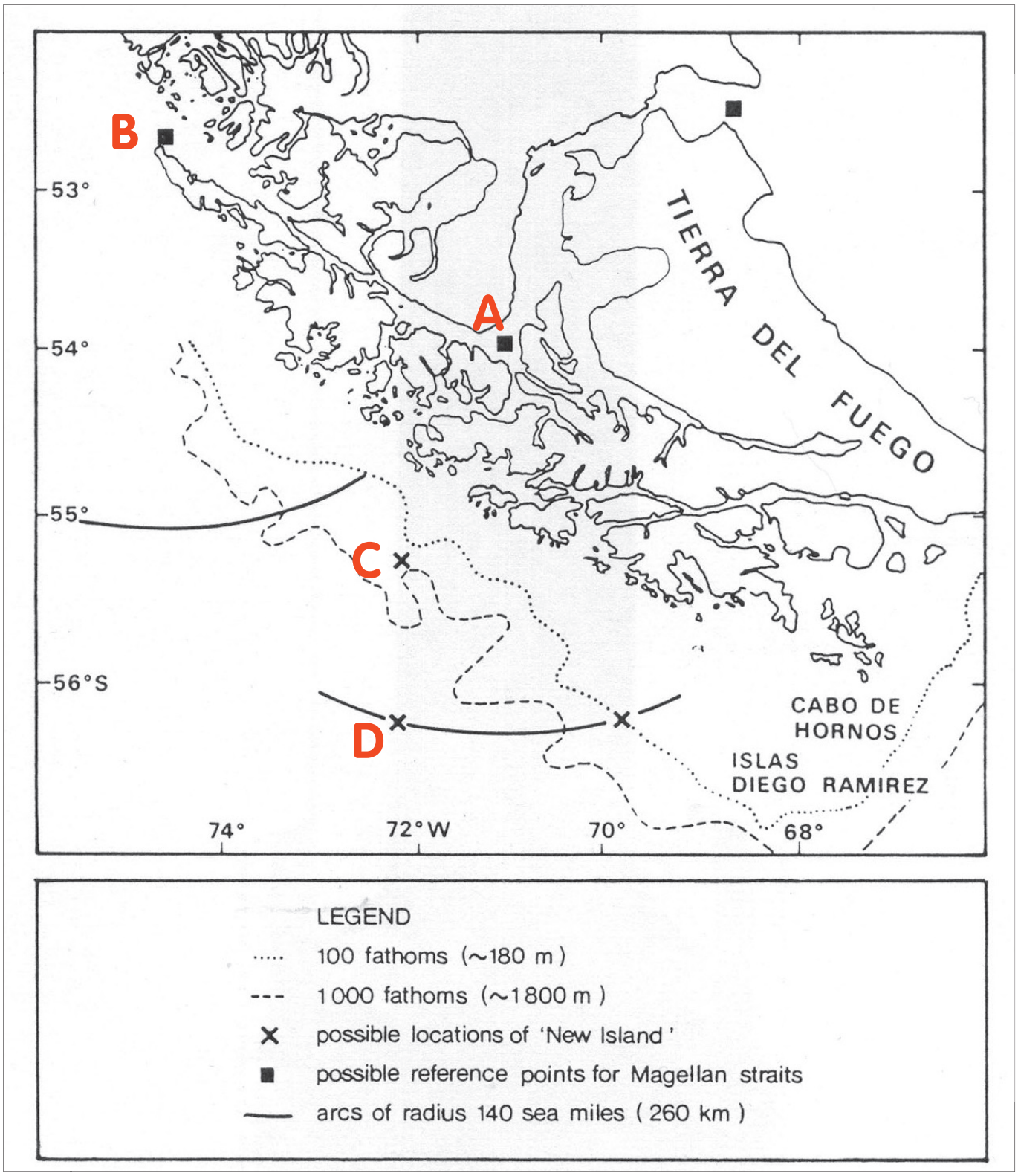
— Capitän J. D. Lunginers vom däniſchen Schiffe „Lutterfeld“ theilt einem Kopenhagener Blatte folgendes Erlebniß mit, welches er am 10. December 1876 auf einer Reiſe nach Valparaiſo hatte. Sein Schiff befand ſich damals in der Nähe von Feuerland, etwa 140 Miles von der Magelhaens-Straße, als es früh am Morgen beinahe an eine Inſel angelaufen wäre, wo die Karten keine Spur von Land angeben. Das Schiff drehte alſo bei, bis der Tag anbrach, worauf der Capitän mit einem Boote nach der neuen Inſel fuhr, welche ſeit ihrer erſten Wahrnehmung allmälig an Größe abgenommen hatte. Rings um die kegelförmige Felsmaſſe ziſchte das Waſſer, und obwohl kein Rauch aufſtieg, ſo war dieſelbe doch zu heiß, um eine Landung zu geſtatten. Langſam fuhr ſie fort zu ſinken, war um 8 Uhr vollſtändig unter der Meeresoberfläche verſchwunden und eine Stunde ſpäter ſegelte das Schiff über die Stelle fort, welche kurz vorher die Inſel eingenommen hatte. (Nature.)

Globus, Illustrierte Zeitschrift für Länder- und Völkerkunde, 33. Band 1878, p. 159-160

Stommel on page 78 writes:

> In the May 1980 issue of *Polar Record*, J.C. Farman, of the British Antarctic Survey, advanced the idea that a published sighting of a volcano reported in 1877 by the Danish ship LUTTERFELD in 65°15'S, 72°10'W suffers from a typographical error, and should be 55° or 56° instead of 65°S. Farman points out that the text of the report also states that the location was 140 seamiles from the Magellan Straits, and that this accords better with the more northerly position. Mr. R.G.B. Brown of Dartmouth, Nova Scotia, then wrote to the *Polar Record* (in the January 1982 issue) that the volcano in this position might be a manifestation of Drake's Island, although there is no mention of Drake's "herbs of great virtue." So there continues to be endless room for speculation about funny islands.

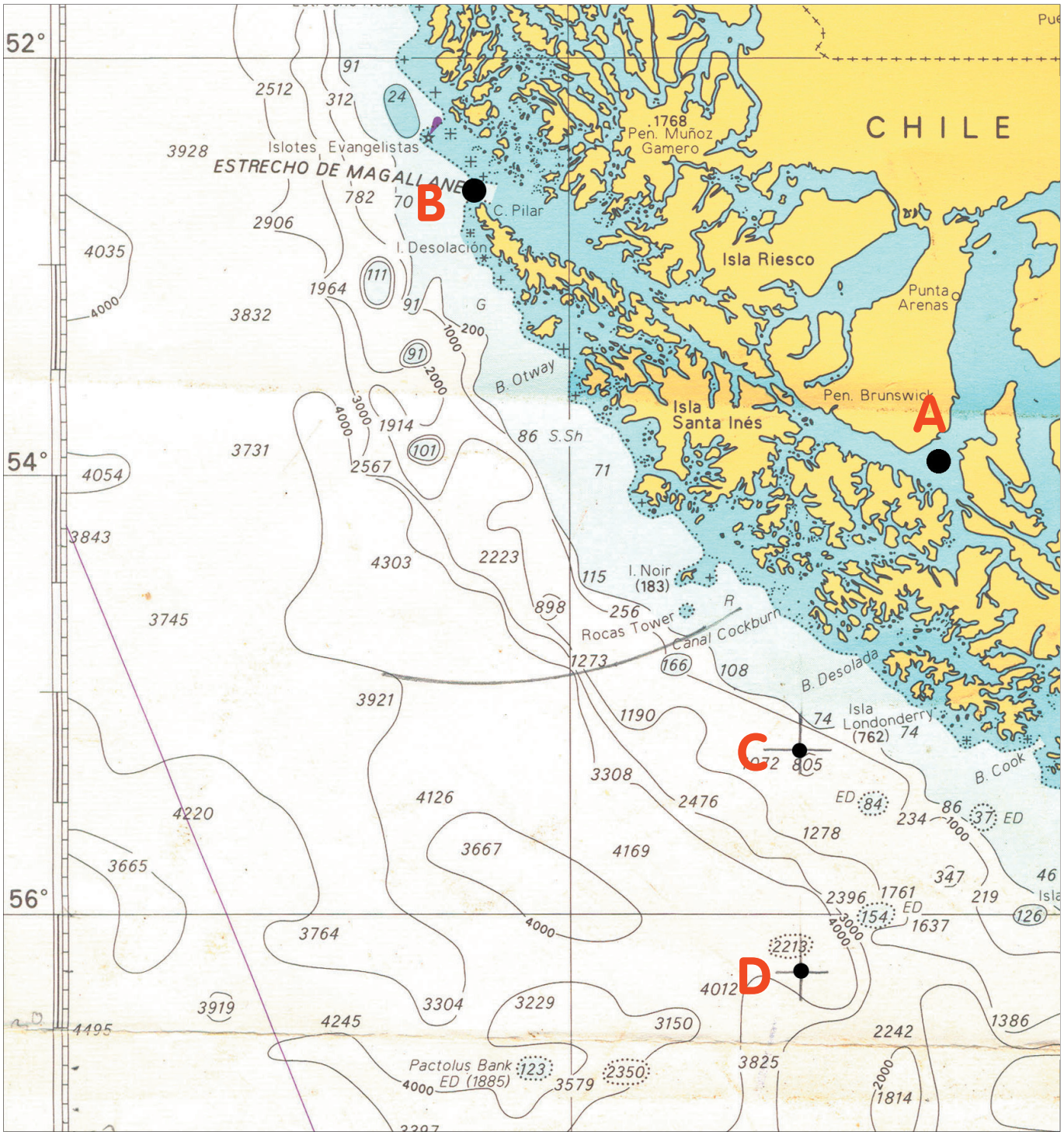
The map Farman used in this *Polar Record* article (see next page) shows two positions on the lower arc (center, at 140 seamiles, is point A). The left one is based on the assumption that the LUTTERFELD used the Greenwich meridian, the right one is based on the assumption that they



From an article by J.C. Farman, of the British Antarctic Survey, in *Polar Record*, issue of May 1980 (red characters added by the author)

still used the Paris meridian (adoption of the Greenwich meridian was formally ratified in October 1884).
The right one would relocate the island at a longitude of 69º50'W, which is consistent with "140 seamiles from the Magellan Straits".
But, it is highly improbable that a navigator would use the halfway point (A on the map) instead of the exit (B on the map) to describe the distance to the Straits.

The plot on BA chart 3200 (below) shows the relation to depth lines.



Lutterfeld plot on BA Chart 3200

The story of the LUTTERFELD is at least supported by other stories of volcanic phenomena, as the story of the yacht MAIKEN illustrates.

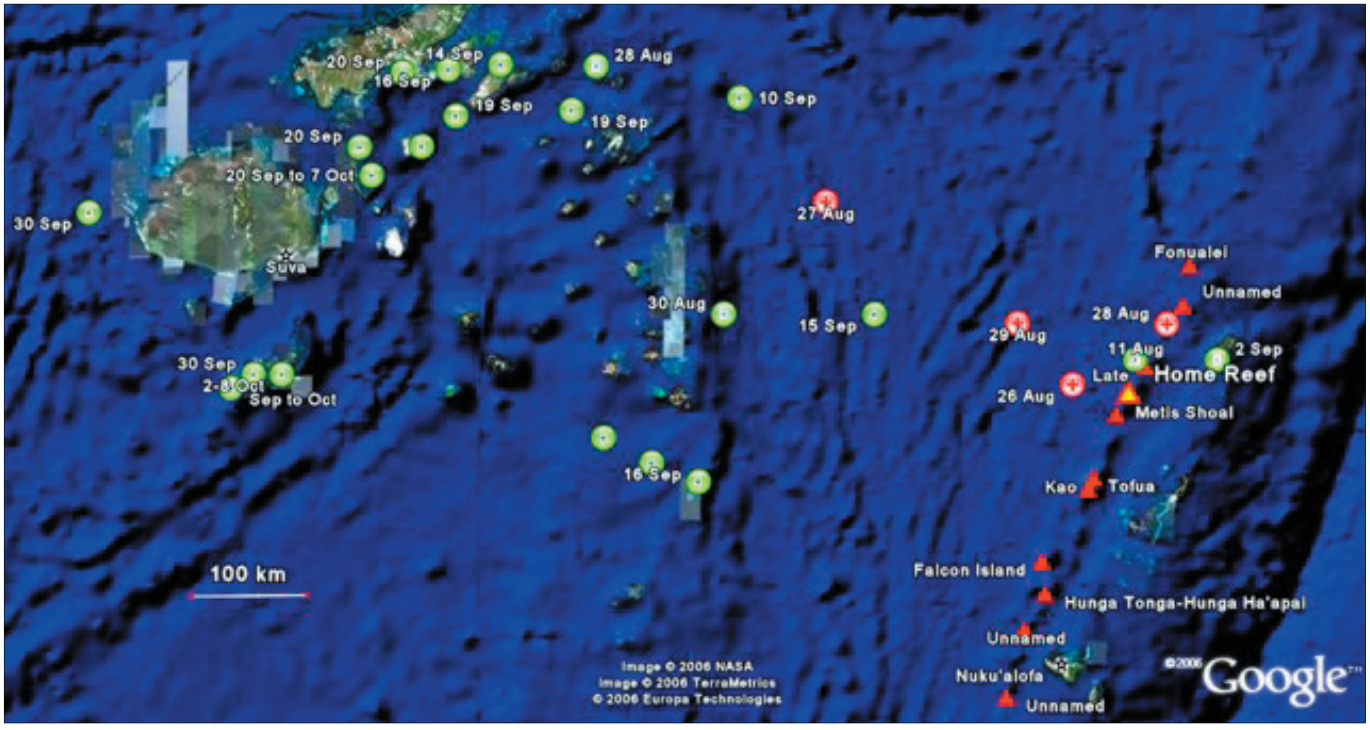
The adventure of this yacht on August 12th 2006, near Fiji, demonstrates the possibility of an island rising up from the ocean. The Danish yacht with Fredrik Fransson and family sailed through a pumice raft and saw an island rising from the sea. The photographs taken by them are impressive. The many examples of new-born islands make it a rather regular phenomenon.
In this case of the MAIKEN the pumice raft was related to an eruption in the Home Reef. There were more - probably connected - sightings of pumice raft at the time, and I found them plotted in Google Earth.

Pumice raft. August 12th 2006, east of the Lau islands near Fiji, on board of the yacht MAIKEN. Photo: crew of the MAIKEN

Pumice raft. August 12th 2006, east of the Lau islands near Fiji, on board of the yacht MAIKEN. Photo: crew of the MAIKEN

An island is born. August 12th 2006, east of the Lau islands near Fiji, on board of the yacht MAIKEN. Photo: crew of the MAIKEN

An island is born. August 12th 2006, east of the Lau islands near Fiji, on board of the yacht MAIKEN. Photo: crew of the MAIKEN



Plots of pumice raft sightings related to the same pumice sighted by the MAIKEN

Chapter 7
Bathymetric and seismologic data

§ 1 Bathymetry

Several attempts were made to find data of this kind.

The Pactolus Bank is not present at all in the authoritative list of undersea features of the International Hydrographic Organisation in Monaco, the GEBCO Gazetteer of Undersea Feature Names. (GEBCO is short for General Bathymetric Chart of the Oceans.)

Also I tried to find out what the US Navy would know of the bathymetry, the underwater topography at the location. According to a naval source the route around Cape Horn is navigated by US nuclear submarines because they do not use the Panama Canal.
And the US Navy certainly would not want their submarines to bump into underwater mountains.

On January 8th, 2005 the American nuclear submarine USS SAN FRANCISCO, traveling 500 feet below the surface at a high speed of over 33 knots, 360 miles south of Guam and on her way to Brisbane, struck an undersea mountain head on. Two sailors died and 60 of her 137 crew were injured. The front end was virtually destroyed but the hull was not punctured.

A Navy official said at the time that the undersea mountain was not on the navigation charts the crew was using. Defense Department officials said they had found a Landsat satellite image taken in 1999 that indicates an undersea mountain rising to perhaps within 100 feet below the surface there. But they acknowledged that the older navigation charts provided to the Navy were never updated to show the obstruction, in part because the agency that creates them has never had the resources to use the satellite data systematically.

On January 15th, 2005 *The New York Times* wrote:

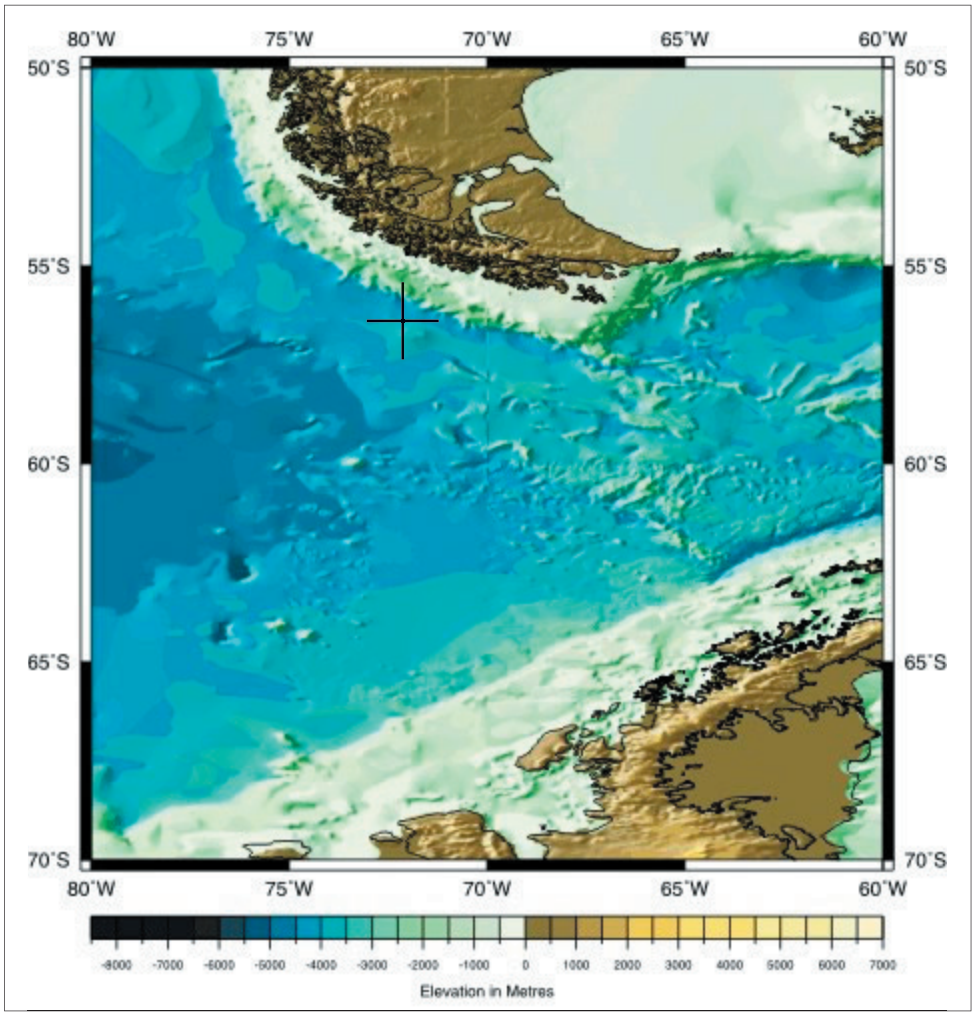
> The officials said the main chart on the submarine, prepared in 1989 and never revised, did not show any potential obstacles within three miles of the crash. They said the incident happened in such a desolate area - 360 miles southeast of Guam - that updating their depiction of the undersea terrain was never considered a priority.
> The new information about the charting flaws also illustrates what many experts say is a broader danger not only to submarines but also to many surface ships. At the same time, it provides a glimpse into the arcane task of plotting an undersea world that in some areas is still more mysterious than the surfaces of Mars or Venus.

> A variety of satellite data is now showing that many sea charts, including some that still rely on notations from the days when sailors navigated by the stars, are inaccurate. And some scientists are calling for greater use of satellite data to fix more precisely the location of undersea ridges, islands and even continental boundaries and to chart large, less studied areas of the oceans.

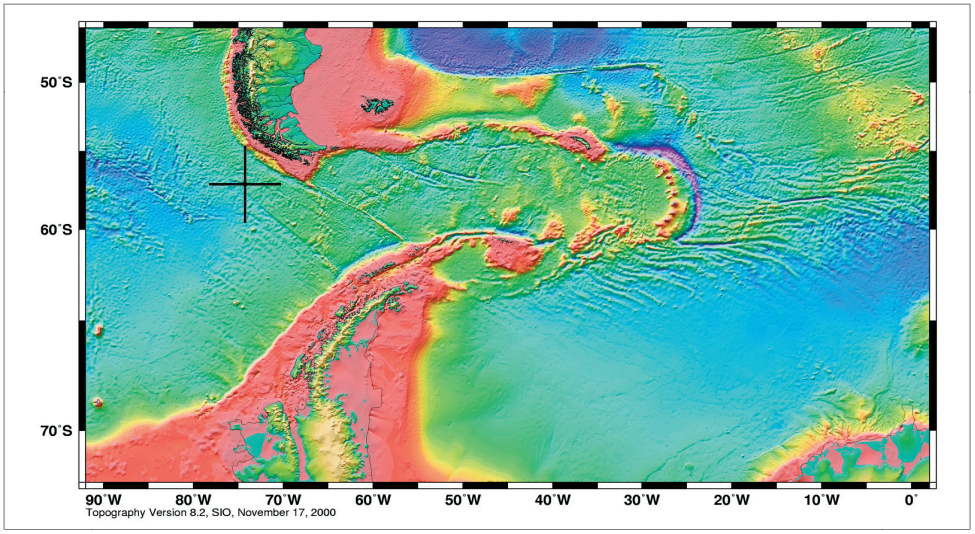
A Navy investigative committee in May 2005 reported that the crew had to be blamed. “Other charts in San Francisco’s possession did, however, clearly display a navigation hazard in the vicinity of the grounding,” the report said. The submarine’s navigation team “failed to review those charts adequately and transfer pertinent data to the chart being used for navigation, as relevant directives and the ship’s own procedures required.”

I wrote to several related institutions, like the US National Geospatial-Intelligence Agency (NGA) and the US National Oceanic and Atmospheric Administration (NOAA).
Some internet sites provide some data (see the illustrations on the next pages, with an indicator of the supposed location of the Bank) but they are not conclusive in any way.

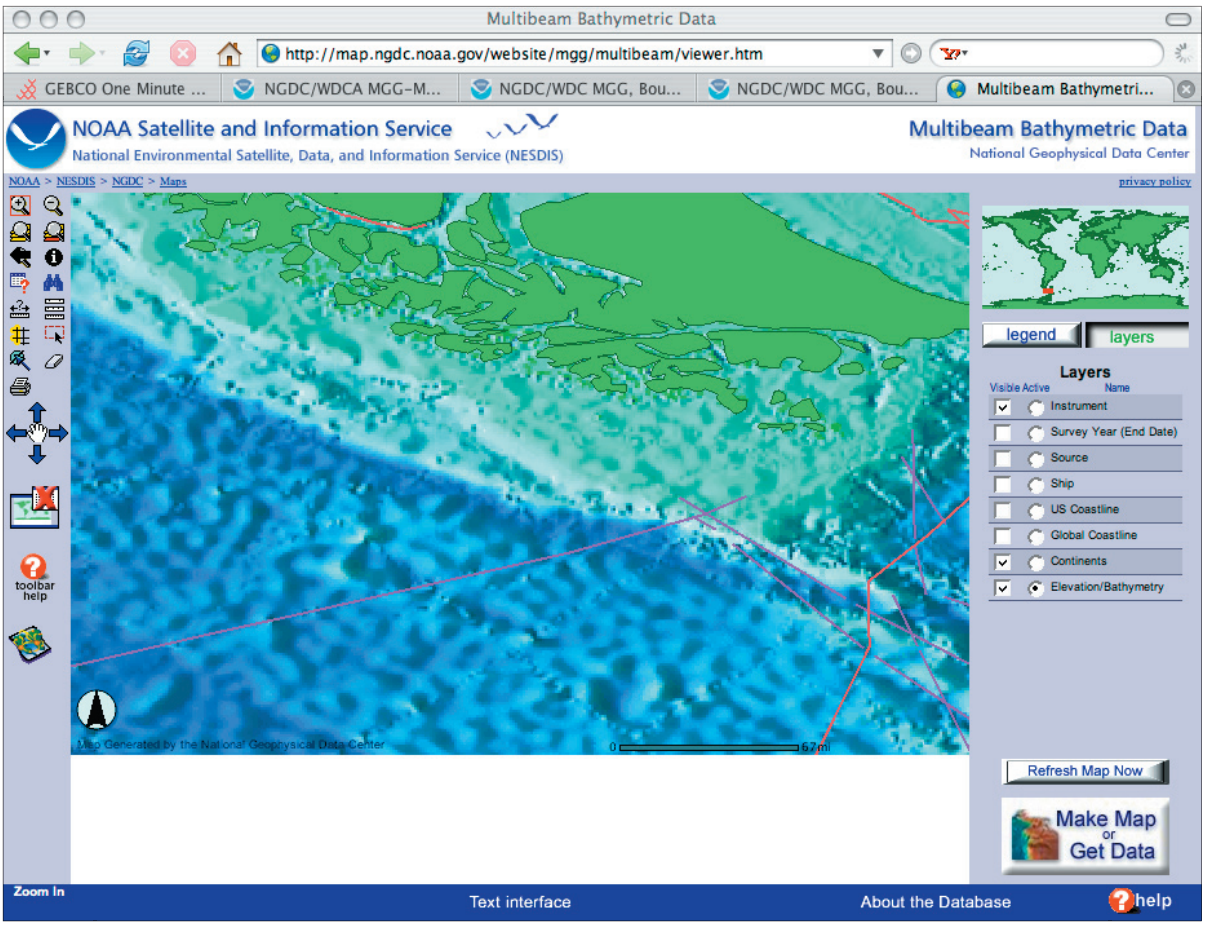
USS SAN FRANCISCO in dock at Guam after the accident, January 26th 2005



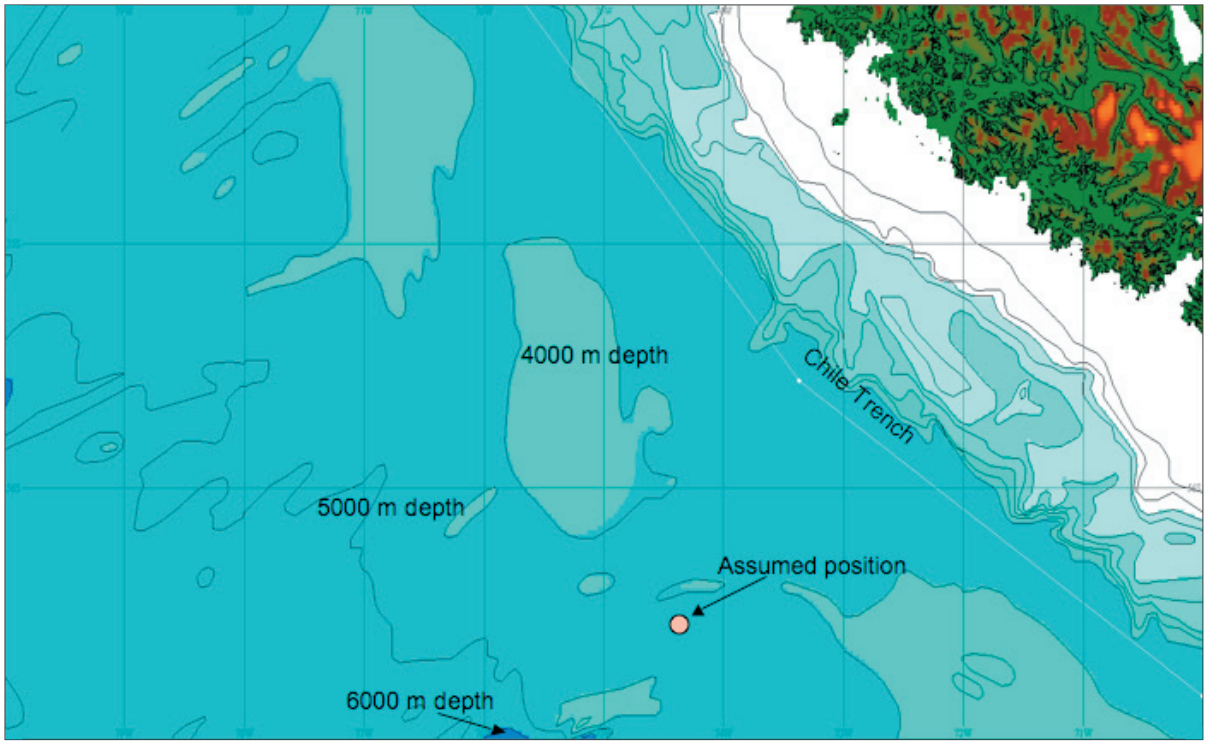
Reproduced from the GEBCO Digital Atlas (published by the British Oceanographic Data Center, 2003)
GEBCO = General Bathymetric Chart of the Oceans
Position added by author



Source: Scripps Institution of Oceanography, University of California San Diego UCSD, La Jolla USA
Position added by author



NOAA, Multibeam Bathymetric Data



Reproduced from the GEBCO Digital Atlas (published by the British Oceanographic Data Center, 2003), and received from Dr. Hans Werner Schenke, also chairman of the GEBCO Sub-committee on Undersea Feature Names SCUFN
GEBCO = General Bathymetric Chart of the Oceans

In relation to my search for bathymetric data, Peter G. Wyatt of the US National Geospatial-Intelligence Agency (NGA), who has been very helpful on several occasions, provided me with the following.

First of all Peter Wyatt quoted US Notice to Mariners 16 of 2007:

> 'RED DOT' SHOAL AREAS
>
> Following the January 2005 incident, wherein the USS SAN FRANCISCO collided with an uncharted seamount approximately 350 miles south of Guam, the National Geospatial-Intelligence Agency (NGA), the Naval Oceanographic Office (NAVOCEANO), and the National Ocean Service (NOS) have combined to create a projected deep-water bottom model capable of estimating the presence of underwater obstructions and seamounts via a process known as 'predicted bathymetry'.
> Predicted bathymetry utilizes satellite imagery to identify gravity deflections and sea surface height abnormalities caused by subsurface land masses. While the science is not perfect, it does provide an awareness of bottom characteristics that may present hazards to navigation.
> Due to the modest bathymetric surveying assets available to the world's hydrographic authorities, detailed surveys have yet to be collected over much of the world's oceans, particularly in areas typically classified as deep water. Historically, detection of deep-water navigational hazards caused by shoaling, underwater volcanoes, and seamounts was the result of random reports of 'discolored water' observed by passing vessels. Using predicted bathymetry, these potentially hazardous areas can be more consistently detected and further investigated.
> Thus, NGA, NAVOCEANO, and NOS combined technical resources to create a seafloor model that can predict the likelihood of underwater obstructions, and have identified hundreds of areas where shoal water and/or seamounts potentially exist. And while the positional accuracy of an identified area may be off by as much as 22 miles and the clearance depth may be inaccurate by as much as 250 meters, simply knowing that a potential hazard may exist in the vicinity alone should serve to reduce the risk of future collisions.
> Despite their inherent inaccuracies, NGA has decided to publish these discoveries in the Notice to Mariners as corrections to charts in both our unclassified and classified chart portfolios. The potentially hazardous areas will be referred to in the Notice to Mariners as 'red dot' areas. However, the color magenta will be used when portraying them on NGA charts to ensure red-light readability.
> Mariners are urged to navigate with particular caution in the vicinity of these 'red dot' areas.

Peter then continued:

> NAVOCEANO was the lead agency in investigating predicted bathymetry. I reviewed what they have provided us thus far, and there was nothing in the vicinity of Pactolus Bank, or indeed anywhere in the vicinity of Drake Passage and the South Pacific region immediately to the west. The area was actively investigated but there was nothing found to indicate an anomaly. I also checked with our in-house bathymetry expert, but his latest holdings showed only random, widely spaced tracklines (quite possibly including WYANDOT's 1956 investigation, which was not a true survey effort), and none of those indicated any unusual shallow areas that might correspond to Pactolus Bank. Neither this information nor the absence of 'Red Dot' findings are sufficient for us to conclusively disprove the charted Pactolus Bank, so it will remain on our charts for now.
> Mariners, particularly submariners, should still exercise caution when navigating in the vicinity of this charted feature.

The rather young technique of satellite radar altimetry might add to the knowledge of the ocean floor topography.
A 2008 dissertation by Joseph Jeffrey Becker (University of California, San Diego, USA) (see Bibliography) states that combination of all available data, by any available source (soundings, radar altimetry, &c) might lead to a resolution of 30 arc seconds. Present resolution, it says, is 10 km.

In general the distribution of bathymetric data is uneven, leaves gaps of many hundreds of kilometers and is biased towards the northern oceans.

An article by Walter H.F. Smith and David T. Sandwell is a proper introduction into the state of affairs of bathymetry. It appeared in *Oceanography* (Vol. 17, No. 1/2004) (see Bibliography).
This article as well as Becker's dissertation can be downloaded from the website of the Scripps Institution of Oceanography in San Diego.

§ 2 Seismology

I have not been able to find any relevant seismological data regarding the area of the Pactolus Bank.
All requests went unanswered.

Chapter 8 Concluding remarks

Since Burnham's report there have been only two attempts to sound the area. The importance of those attempts is extremely limited.

The present day existence of the Bank is very doubtful.

Rodrigo Núñez of the Chilean SHOA wrote in an email on September 15, 2004:

> Finally, according to your consult, I must inform you that the present priority of this Service in relation to hydro-cartographic works is the commercial navigation track between Puerto Montt and Punta Arenas. Accordingly, I inform you that due to the importance of your consult, it has been registered for a future hydrographic work to be carried out in the next years. It is expected that this service will position and measure exactly the depth of this hydrographic accident.

Maybe the Chilean Navy will discover the truth about the present status of the Banco Pactolus: a mount, an island that has disappeared, a volcano, or nothing at all.

May 2008, Hylke Tromp
The Netherlands

(hilariusj@hotmail.com)

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Walter H.F. Smith
NOAA Laboratory for Satellite Altimetry, Silver Spring, MD, USA
& David T. Sandwell
Institute for Geophysics and Planetary Physics, Scripps Institution of Oceanography
University of California, San Diego, USA
‘Conventional Bathymetry, Bathymetry from Space, and Geodetic Altimetry’

Acknowledgements

Much appreciated is the help from several institutes and individuals:

United Kingdom

The Hydrographic Office, Taunton, Somerset
(Adrian Webb)

The National Archive of Maritime Cartography, Hydrographic Office, Taunton, Somerset

Scott Polar Research Institute, University of Cambridge, Cambridge
(Beau Riffenburgh)

British Oceanographic Data Center BODC, Liverpool
(Polly Hadziabdic, Pauline Weatherall)

United States of America

Peter G. Murphy, retired US Navy officer, Davidson, NC

William Tribble, retired US Navy officer, Arlington, TX

National Archives and Records Administration, Washington DC
(Kim Y. McKeithan, Barry L. Zerby)

Naval Historical Center, Department of the Navy, Washington DC
(Kathleen M. Lloyd)

National Geospatial-Intelligence Agency NGA
(Pete Wyatt)

Library of Congress, Geography and Map Division, Washington DC
(Michael Klein)

Department of Homeland Security, USCG Historian's Office, Washington DC
(Jeffrey Bowdoin)

National Oceanic and Atmospheric Administration NOAA, Hydrographic Surveys Division
(David Scharff)

Carlos Lopez, director of Menlo College, Atherton CA

Argentina

Museo Marítimo de Ushuaia, Ushuaia
(Carlos Vairo)

Netherlands

Nederlandse Vereniging van Kaap Hoorn-vaarders, Hoorn
(Humphrey Hazelhoff Roelfzema, Ronald van Ulsen, Ronald de Jong)

Arctisch Centrum, Rijksuniversiteit Groningen, Groningen
(Mevrouw Bosma)

Eef Willems, owner/captain of the 'Tooluka'

Frits Loomeijer, directeur Maritiem Museum, Rotterdam

Jolanda Oldenburg, Dussen (correcting my English)

Germany

Institut für Ostseeforschung, Rostock

Bundesamt für Seeschifffahrt und Hydrografie, Dienstsitz Hamburg, Hamburg
(Martina Plettendorff)

Bibliothek des Wissenschaftsparks Albert Einstein (Eine gemeinsame Bibliothek des GeoForschungsZentrums Potsdam, des Potsdam-Instituts für Klimafolgenforschung und der Stiftung Alfred-Wegener-Institut für Polar- und Meeresforschung Forschungsstelle Potsdam), Potsdam
(Roland Bertelmann)

Bundeswehr, Presse- und Informationszentrum Marine, Glücksburg
(Stabsbootsmann Haak)

Militärgeschichtliches Forschungsamt, Abteilung Ausbildung, Information und Fachstudien, Bereich III, Potsdam
(Korvettenkapitän Cyrus Roÿeck)

Alfred Wegener Institut für Polar- und Meeresforschung, Bremerhaven
(Dr. Hans Werner Schenke, also chairman of the GEBCO Sub-committee on Undersea Feature Names SCUFN))

Chile

Roberto Benavente, retired Chilean Navy Rear-admiral, chairman of La Cofradía de los Capitanes del Cabo de Hornos Caphorniers de Chile

Servicio Hidrográfico y Oceanográfico de la Armada de Chile
(Commander Rodrigo Núñez, acting director)

Global

South-pole.com
(Gary Pierson)